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THE UNIVERSITY OF ALBERTA
SELECTED CHARACTERISTICS OF THE SCHOOL DISTRICTS
OF BRITISH COLUMBIA

by
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A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Selected Characteristics of the School Districts of British Columbia" submitted by William A. Adams in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

The school districts of British Columbia may be classified on the basis of their settlement patterns as Municipal districts, Large Municipal districts, Large Rural districts or Unattached Small Rural districts. The eighty-two districts which had been in existence with unchanged boundaries from 1950 to 1962 were grouped in these four classes. Twenty variables were selected which established certain physical characteristics of the districts, examined the major incomes and expenditures, and investigated certain indicators of educational "excellence" both in the classes of districts and in individual districts.

This study had two purposes. The first was to test whether each or any class of districts had a distinctive distribution of the range on any variable in order that assumptions such as "Rural school districts generally provide a standard of education inferior to that found in urban districts" might be substantiated or not. The second was to test the relations between district ranks on two or more variables to establish whether certain conditions in the districts predicate certain other related consequences; for example, the possibility that low density of pupil population was related to high pupil conveyance expenditures in the districts was tested by comparing ranks on two variables, and rejected on the basis of the evidence.

In general it was not possible to distinguish the classes of districts on the basis of the ranges on the variables, since the ranges

within classes were greater than the ranges between classes.

Nevertheless, certain conclusions were reached.

1. While educational excellence, as measured by the variables selected was not a prerogative of any class of district, such excellence was most commonly found in the urban districts and least commonly in the rural districts.
2. There was no indication that expenditure on education in the districts was in any way limited by the assessment values per pupil. This tended to suggest that the provincial grants system was based on the needs of the districts rather than on the assessable wealth.
3. The great variations observed in standings on the educational variables indicated that there was not equality of opportunity for all children of the province. This was interpreted as being a matter for local authorities to evaluate and remedy, since in the existing provincial framework of legal, financial and educational conditions, educational excellence was possible of attainment in many districts.
4. It was suggested that to stimulate local interest the province should issue more data on district standings on provincial examinations, on retention ratios and on accreditation of schools within the province.

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CHAPTER I

THE INTRODUCTION

I. THE BACKGROUND OF THE STUDY

Before 1945 there were six hundred and sixty-three school districts in British Columbia, many of which in rural areas operated but a single school and that inefficiently.¹ Experiments had been carried out, notably by Dr. Plenderleith in Peace River and in Nanaimo-Ladysmith, to unite some small school districts into large administrative units. These new large units seemed to function with conspicuous success in reducing inequalities in local taxation and in improving the quality of instruction.² Although the first large rural administrative unit began to function as early as 1935, and although the "King" Report advocated in 1935 that the multiplicity of school boards be reduced, the government of the province took no action to introduce such units generally.

In 1944 Dr. Maxwell A. Cameron, head of the Department of Education of the University of British Columbia, was chosen as sole Commissioner to inquire into the allocation of powers between the Provincial Department of Education and the school boards; the responsibilities of the school boards; the methods and costs of administration; and to make

¹Henry B. King, School Finance in British Columbia (Victoria: King's Printer, 1935), pp. 104-111.

²Provincial Advisory Committee to the C.E.A.- Kellog Project in Educational Leadership, School Organization in British Columbia (Victoria: Department of Education, 1952), pp. 12-23.

such recommendations as he might think advisable.

Dr. Cameron submitted his report in 1945, and its recommendations were accepted in toto by the provincial government. In the ensuing revision of The School Law the province was divided into large school districts, without securing the agreement of the taxpayers, and according to the following criteria:

If possible the area chosen as a school district should be large enough to justify a reasonably adequate schooling from grades I to XIII. . . .

A second characteristic of adequate school districts in British Columbia is the fact that they should disregard municipal boundaries.

Some idea of the size of the school districts contemplated may be gathered if we say that it is hoped that many of the new districts will employ at least forty or fifty teachers, and that districts which employ about a hundred teachers approach the ideal.³

In 1963 British Columbia was sub-divided, as a result of successive legislation, into one hundred and three school districts. These school districts were formerly classified and defined as follows:

1. Thirty-eight large municipal school districts, each composed of one or more urban municipalities and a rural area;
2. Seven municipal school districts, in which the district is coterminous with an urban municipality;
3. Thirty-seven large rural school districts, which are rural areas with no urban component other than villages;
4. Twenty-one unattached small rural school districts, which are so

³Maxwell A. Cameron, Report of the Royal Commission of Inquiry into Educational Finance. Province of British Columbia (Victoria: King's Printer, 1945) cited by S.N.F. Chant, J.E.Liersch and R.P. Walrod. Report of the Royal Commission on Education (Victoria: Queen's Printer, 1960), p. 56.

isolated that they cannot be attached to the eighty-two large units.⁴

While these four classifications are no longer in official use, they serve to distinguish certain physical characteristics of school districts in British Columbia.

These school districts draw their revenue from two sources: from school district requisitions on municipal councils, and from provincial government grants. The greatest possible variation is found in the relative proportions of these two components. In the school year 1961/2, the unattached small rural school district of Fair Harbour, on the west coast of Vancouver Island, had no income from local taxation, while the unattached small rural district of McDame Creek, near Watson Lake on the Alaska Highway, had no income from provincial government grants.⁵

While these two examples represent extreme cases drawn from the unattached small rural school districts, considerable variation occurs among the larger districts in the relative proportions of the revenues drawn from local taxation and from government grants, depending on such factors as the values of local assessable property; the numbers of pupils in attendance in the schools; the numbers and qualifications of the staffs; the types of programmes offered in the schools; the costs of transporting pupils to the schools the costs of buildings, maintenance,

⁴ Dominion Bureau of Statistics, The Organization and Administration of Public Schools in Canada. 1960 Edition (Ottawa: Queen's Printer, 1960) p. 56.

⁵ Government of British Columbia, Department of Education, Ninety-first Annual Report, 1961/2 (Victoria: Queen's Printer, 1963), p. 56.

operations and administration.

The contribution of the province toward the costs of education in the school districts is calculated on a basic grant and a capital grant as outlined below:

A. The Basic Grant comprises

1. Minimum salaries on an approved scale for an approved number of teachers;
2. An administrative allowance for teachers holding positions of special responsibility;
3. An isolation allowance for teachers in remote areas;
4. All other essential operating expenses included in the budget;
5. Less the amount raised by a levy of twelve mills in urban municipalities except villages and rural areas, on one hundred per cent of the assessed value of land and seventy-five per cent of the assessed value of improvements; and

B. The Capital Grant comprising the sum of

1. The annual payments for interest and principal for new bonds for construction;
2. Old debts for which payments have been previously made and which have been approved;
3. Less capital expenses approved but not eligible for grants.

The province pays fifty per cent of the total expense approved under B.1 until such expense equals three mills on the assessed value of land and improvements in the school district; seventy-five per cent of additional expenses under B.2 until the board's contribution reaches an

additional one and a half mills on the assessed value of land and improvements; and, thereafter, ninety per cent of the additional expenses for the current calendar year.

All farm lands are exempted from taxation for school purposes up to a limit of \$1,000 of assessed value for each farm unit.

From 1961 onward the mill rates were to be determined annually, but might not exceed eighteen mills, and the total amount to be raised by all school districts was not to exceed fifty per cent of the total expenses for all school districts.⁶

The Report of the Royal Commission on Education⁷ noted that between 1951 and 1956 population increases of between ten and almost fifty per cent had occurred in various areas of British Columbia, and that consequently:

These rather wide local variations in population growth had placed a greater strain upon some school districts than upon others, and that some of the wide differences between school districts . . . may be attributed, at least in part, to these inequalities in population growth.⁸

Introduction to the problem

It seems evident that the rate of growth of the school population will have a considerable effect on school district expenses as more buildings, more teachers and more instructional materials will have to be provided. The costs of new sites, buildings, furniture, equipment,

⁶Dominion Bureau of Statistics, op. cit., pp. 40-41.

⁷Chant, op. cit., p. 27.

⁸Ibid., p. 42.

renewals and alterations are classed as extra-ordinary expenses, and unless supported by current revenue, must then be financed through the sale of debentures. Of such sales only the annual interest and repayments are sharable, as noted above, and on a sliding scale at a rate not in excess of ninety per cent of the actual expenses.

It seems clear that the expenses of school districts will vary in accordance with such factors as the area of the school district, the numbers of pupils, the quality of the school buildings, the qualifications and experience of the staffs and the rate of growth of the pupil population. It also seems probable that school districts affected by the same factors in the same degree will have expenses in close accord, both in total and in the distribution of particular expenses making up that total.

It is not possible, even where the physical conditions of the school districts are comparable, to assess with accuracy the quality of education offered in those districts. There are, however, certain indicators which may give a measure of the probable effectiveness of the school programme. Among these are the district means of pupil scores on the annual Grade VII Provincial Examinations, the retention ratio of secondary pupils in the school districts, and the absence or presence of accredited high schools. If it is accepted that small high schools probably offer but a narrow range of courses, the physical sizes of the schools may indicate a measure of effectiveness of the educational programme.

It is probable that an urban and a rural school district may have costs per pupil that are almost identical in gross amount; yet the costs

may be distributed in very different ways. The rural district may disburse considerable sums on the transportation of pupils or on the operation of dormitories and spend proportionally less on special services such as guidance or counselling or on the retirement of debts. Thus the expenses may be allocated to services that have a very different impact on the quality of instruction.

II. THE PROBLEM

It was the purpose of this study to examine the distributions of selected physical, financial and educational variables within each of the four types of school districts, to determine whether the distributions were typical and distinctive of the types of districts. This study was descriptive and exploratory in nature, and was designed to provide information on the school districts, both singly and grouped by types, in a form whereby comparisons and contrasts might be readily made.

III. THE RESEARCH HYPOTHESIS

For the purpose of research, the problem is restated in the null-hypothesis form, that is, with the assumption that no significant differences would be found.

The hypothesis

There will be no significant differences in the distributions found, of the variables A to T appended below, which are typical and distinctive of the four classes of school district, namely the large municipal, the large rural, the municipal and the unattached small rural

school districts.

The Variables

1. The physical variables:

- A. The areas, in square miles, of the school districts;
- B. The numbers of pupils enrolled in the school districts in 1961/2;
- C. The density of pupils per square mile in the school districts in 1961/2;
- D. The annual growth rate of pupil population in the school districts in 1961/2;

2. The financial variables:

- E. The assessment values per pupil enrolled in the school districts in 1961/2;
- F. The total expenditures per pupil enrolled in the school districts in 1961/2;
- G. The annual growth rate of total expenditures per pupil enrolled in the school districts in 1961/2;
- H. The local contribution to the costs of education, per pupil, in the school districts in 1961/2;
- I. The provincial grant as a percentage of the total costs in the school districts in 1961/2;
- J. The debt charges per pupil in the school districts in 1961/2;
- K. The average teachers' salaries in the school districts in 1961/2;
- L. The teachers' salaries per pupil in the school districts in 1961/2;
- M. The administrative expenditures per pupil in the school districts in 1961/2;

N. The plant operation expenditures per pupil in the school districts in 1961/2;

O. The conveyance expenditures per pupil in the school districts in 1961/2;

P. The other instructional expenditures per pupil in the school districts in 1961/2.

3. The educational variables:

Q. The district means of pupil scores in the Provincial Grade VII examinations in the school districts in 1963;

R. The retention ratio of secondary pupils in Grade X to XIII expressed as a percentage of the total enrolment in the school districts in 1961/2;

S. The percentage of pupils in Grades X to XIII enrolled in accredited high schools in the school districts in 1961/2;

T. The average numbers of pupils per school in the school districts in 1961/2.

IV. ANCILLARY PROBLEMS

In the statement of the problem it was noted that this study was designed to provide information on the school districts, both singly and grouped by types, in a form whereby comparisons and contrasts might be readily made. This information was used to examine the relations which the several variables bore to each other generally and in particular to seek possible answers to certain assumptions that appeared to follow reasonable expectation. These assumptions were stated in the form of questions.

1. Does a high rate of growth of pupil population in the school districts involve an increase in indebtedness as shown by high debt charges per pupil?
2. Does a high rate of growth of pupil population involve a correspondingly high rate of growth of total expenditures?
3. Do high expenditures per pupil enrolled in the districts involve a high degree of effectiveness of the educational programme as indicated by the educational variables?
4. Do school districts which have high enrolments of pupils operate more cheaply than those districts which have a lesser enrolment? In effect, is there a reduction for quantity?
5. Do low densities of pupils per square mile involve high transportation expenditures in the school districts?
6. If one or more classes of districts consistently have high total expenditures per pupil, are these high expenditures consistently occasioned by one or more of the financial or physical variables considered in this study?
7. Are there certain physical and financial variables which appear to be related to high standing on one or more of the educational variables?
8. Are the several educational variables related to one another in such a way as to suggest that they all measure the same thing, or does high standing on one variable not necessarily involve high standing on the other variables?
9. Is there any evidence that those districts which have high assessment

values per pupil are able to allocate funds in aid of education which are beyond the resources of districts which have low assessment values per pupil?

10. In general, what are the relations of the variables to each other?

V. THE NEED FOR THE STUDY

In British Columbia, as has been noted, there exist wide variations between the amounts of money raised by local taxation and the amounts provided by provincial grants, both as totals and as proportions of the whole; such variations should be examined and some justification sought.

Again, the costs of education, expressed in terms of amounts per pupil enrolled, are almost the same in the largest school district (Vancouver) and in one of the smallest (Fair Harbour)⁹, but the allocation of funds under the several expense accounts is widely different, and this may or may not be typical of certain conditions in effect. Some investigation of the allocation of funds under the several expenditure accounts is needed in order that the total expenditures be clarified.

The inequality of educational opportunity for children is recognized as a national problem. The Dominion Bureau of Statistics states:

According to the 1956 Census, some 65% of the population were classed as urban dwellers; almost half of them located in the 39 cities of 30,000 or over. The rural folk may be found in hamlets or villages of less than 1,000 population, well organized farm districts or in scattered dwellings many miles from town or school, and with but primitive means of transportation. It is the rural areas that present Canada's most insistent educational problems today.¹⁰

⁹Government of British Columbia, op. cit., pp. 2 27-9.

¹⁰Dominion Bureau of Statistics, op. cit., p. 9.

It may be that certain rural districts have overcome some of the disabilities of such rural areas and that the problem is not typical of all rural areas.

The Report of the British Columbia Royal Commission on Education in 1960 noted that expenditures per pupil in school districts varied from a low of \$125 to \$129, to a high of \$600 to \$624, with a median of \$275 to \$299¹¹ and observed:

The distributions show that the median per pupil cost for 1958 is higher than that for 1955; also the range is somewhat higher. The latter is largely due to a few school districts which had high per pupil costs in 1955 increasing them still more in 1958, whereas the school districts having per pupil costs below the median did not increase as much in 1958.

The distributions indicate that some school districts operate much more economically than others, and those with low per pupil costs tend to remain relatively low, whereas those with high costs tend to go even higher.¹²

The high and low costs per pupil in the districts need to be investigated to find out in what budget items the greater or lesser expenses occur, and to test whether such differences are distinctive of a type of school district or of certain physical conditions in effect.

With reference to the need for examining the proportions of the district budget devoted to various items of expenditure Mort and Reusser state:

It is rather amazing that no intensive studies, other than those of Grimm, have come to light bearing on the shifting of expenditure pattern among budgetary items as the expenditure level varies. The tendency to refer to averages among schools over a wide range of

¹¹Chant, op. cit., p. 418.

¹²Ibid.

expenditures would seem to be very misleading, judging from what may be observed from the various studies on what happens on various expenditure levels reported in this and succeeding sections. For example, it does not seem likely that the same percentage of expenditure going to administration would be the same in the low-expenditure schools, relatively simply organized, as in a high expenditure school providing a wide range of services, particularly in such schools where considerable attention is given to working with the public.¹³

Concerning the size of schools as related to their efficiency,

Johns and Morphet state:

It was generally agreed that units smaller than 1500 pupils were deficient in their educational programme, and that the smaller they were, the greater the deficiency and the higher the per capita cost.¹⁴

This may or may not be the case in Canada, since these authors wrote of the United States, and it may also be the case that certain small school districts may, by considerable effort and good leadership, have rendered this observation untrue as a characteristic typical of small school units.

Generally there is a need to ascertain whether certain criteria of physical characteristics, finance and education are typical and distinctive of a certain class of school district and to speculate on the causes and effects of these differences. This study attempts to meet the need.

¹³Paul R. Mort and Walter C. Reusser, Public School Finance. Second Edition. (New York: McGraw Book Company Inc., 1951), p. 123.

¹⁴R. L. Johns and E. L. Morphet, Problems and Issues in Public School Finance, National Conference of Professors of Educational Administration (New York: Columbia University, 1952), p. 68.

VI. DELIMITATION OF THE STUDY

This study was limited to those school districts which have been in existence from 1950 to 1962 without any change in boundaries or in names. This restriction was necessary to permit valid comparisons of rates of growth within the districts. Within this period, and in these districts, only such expenditures were considered as appeared under the expenditure headings listed in the appropriate columns of the Annual Reports of the Department of Education of British Columbia. Thus "Administration Expenses" refers to a column of the Report, and does not purport to be an accurate statement of the costs of administration by any other definition.

This study does not attempt to evaluate the detailed provisions of The School Law with regard to finances, neither does it seek to justify or condemn any existing practice of, or condition in the school districts.

Since the method of accounting in the Annual Report of the Department changed, and the present system giving details of expenditures was only introduced in the year 1955/56, rates of growth in expenditure accounts were calculated on the period 1955/6 to 1961/2.

VII. LIMITATIONS OF THE STUDY

This study was limited by certain conditions including:

1. The rate of growth of pupil population was calculated on a comparison of the 1961/2 data with those of 1950/1; there was no indication of acceleration or deceleration of growth rates.

2. Such indicators of adequacy of educational offering as the retention of secondary students, the numbers of students in accredited schools, the average numbers of students in the schools and the district mean of student scores on Provincial Grade VII examinations are not necessarily accurate measures of the educational qualities of the districts.
3. The reported expenditures listed in the Annual Report may not indicate, in the form presented, an accurate accounting of expenses incurred for particular services in a finer differentiation than is afforded in the official listings. Hence it is not possible to distinguish under the headings of "Administration" and "Teachers' Salaries", those salaries of administrative personnel, including those of supervising principals, which a more detailed study would consider as properly included under "Administration".
4. Certain limitations are inherent in using costs per pupil enrolled as an index of expenditure. It appears evident that where class enrolment is small, as in some sparsely populated areas, the teacher's salary will appear to make a large contribution to per pupil costs when divided by the numbers of pupils enrolled, though the salary may well be smaller, for various reasons, than that paid to a more highly qualified and so a more highly paid teacher in a classroom where the number of pupils is greater. This argument applies to costs of administration in small school districts. The services of a secretary-treasurer and his clerical staff that may be necessary to serve one hundred pupils may be adequate for several times that number. For

this reason the literal comparison of very small school districts with larger districts was made with caution.

5. Since no statistical correlations of the variables were made, the discussion of relations between the variables was not as rigorous as would have been required if this discussion had been the prime purpose of this study.
6. The retention ratio, as defined, is complicated and limited in accuracy by the rate of growth of the pupil population, and will serve only as a gross indication of retention. No attempt was made to compensate for growth, since the required data were not available.
7. No data on Federal aid to the districts for vocational schools or for the education of children of Indian ancestry were available for inclusion in this study. This may limit slightly the accuracy of certain cost variables.
8. Since the district means of pupil scores on the Provincial Grade VII examinations were not available for 1962, the means for 1963 were used, under the assumption that these were not likely to differ markedly from year to year.

VIII. DEFINITION OF TERMS

For the purposes of this study, the following definitions apply:

1. Administration Expenditures are the sum of
 - a. Salaries of the administration staff in the central office
 - b. Office expenses
 - c. Trustee expenses

- d. General administration expenses
- 2. Plant Operation and Maintenance Expenditures are the sum of
 - a. Janitor and engineer's salaries
 - b. Janitor and engineer's supplies
 - c. Light, power, water and fuel expenses
 - d. Insurance, rentals, other expenses.
- 3. Conveyance of Pupil Expenditures are the sum of
 - a. Bus operating expenses
 - b. Contract expenses
 - c. Transportation assistance expenses
 - d. Other expenses.
- 4. Teachers' Salaries are the sum of the salaries of all persons teaching in the schools, not excluding non-teaching principals and supervisory staff.
- 5. Other Instructional Services Expenditures are the sum of
 - a. School clerical salaries
 - b. Teaching supplies expenses
 - c. Other instructional expenses
- 6. Debt Services Expenditures are the sum of
 - a. Sinking fund expenses
 - b. Debenture expenses
 - c. Bank term loan expenses
 - d. Bank charges and other expenses
- 7. Rate of Growth is defined as that percentage of simple interest that would cause one number to equal another at the end of a given period

of time, thus,

Growth from 100 to 120 in five years is calculated as four per cent average annual growth.

8. Accredited Schools are defined as those schools which in the year 1962 were on the list of Accredited Schools issued by the Department of Education of British Columbia.
9. The Retention Ratio, as used in this study, is defined as that proportion which the enrolment in Grades X, XI, XII and XIII bears to the total enrolment in the district in 1961/2.
10. The District Means of Pupil Scores in the Provincial Grade VII examination is defined as that numerical equivalent average recorded by the Division of Tests, Standards and Research of the Department of Education as the district mean score for all pupils examined in the district. It should be noted that the mean of all pupil scores is 5.0, but that this is not necessarily the mean of the district mean scores.

CHAPTER II

THE RELATED LITERATURE

Literature Relating to British Columbia

The prime source of information related to British Columbia is found in the several reports of Royal Commissions.

H. L. King's report,¹⁵ School Finance in British Columbia, reviewed the organization of the school districts, the financial structure by which grants were made and by which local contributions were raised, and recommended that large administrative units be formed as soon as possible; that the provincial government assume more of the costs of education forthwith and later move toward assuming the whole cost of education, less a uniform levy on all real property of three or four mills; that income tax be raised by one or two per cent to provide equitably for the additional required revenue; that local property assessment procedures be standardized in the province; and that each school district be placed under the jurisdiction of a Director of Education appointed by the Department of Education and responsible to that department. He advocated, in fact, almost complete centralization. His views were doubtless coloured by the difficulties experienced by the districts in raising funds by property taxation during the depression years, and by the abuses which the organization of education in very small districts encouraged in officials. In this context, the section on pages 120 to 129 entitled

¹⁵Henry L. King, School Finance in British Columbia (Victoria: King's Printer, 1935).

"Local administration at its worst", relates the difficulties experienced by a young teacher whose pupils were threatened by a school child with a knife, and who could obtain no support from the school board, two of whose members were the mother and uncle of the boy in question. This section contains this damning statement:

It is obvious that a Board such as employed her is not only unable to select and appoint teachers, but is unfit to exercise any public functions whatever.

The Cameron Report¹⁶ recommended a complete modification of the grants system. A basic grant was to be made after deducting only a local levy of five mills on one hundred per cent of the value of land and seventy-five per cent of the value of improvements; a grant of fifty per cent of the costs of approved expenditures on buildings and new equipments was to be made for all types of schools and for all schools districts; as far as possible all schools in the province were to be included in some seventy-four large school districts; and certain changes were to be made in elections to the post of school trustees and in the duties of school inspectors. This report was accepted and most of its recommendations implemented. A result of this report was that standard assessment practices were introduced throughout the province.

The Report of the "Chant" Commission¹⁷ was most comprehensive; its

¹⁶Maxwell A. Cameron, Report of the Royal Commission of Inquiry into Educational Finance, Province of British Columbia (Victoria: Queen's Printer, 1945).

¹⁷S. N. F. Chant, J. E. Liersch and R. P. Walrod, Report of the Royal Commission on Education, Province of British Columbia (Victoria: Queen's Printer, 1960).

terms of reference included study of:

1. The adequacy of the basic educational philosophy; the curriculum and courses of study; textbooks and library facilities; examinations and reporting systems;
2. The general system and scheme of education, including organization and supervision;
3. Teacher supply and training;
4. The economics of education exclusive of the means by which funds were raised and distributed.

The Commission gathered a great deal of information from the briefs presented to it by interested parties, from its visits and interviews in many parts of the province, and from its own researches. The report recommended that a planning board be established under the aegis of the Department of Education to forecast developments without the distraction of present and pressing commitments. In this context the Commissioners noted that:

. . . there is undoubtedly a large amount of important information in the Department's records which cannot be put to use because of the lack of staff for handling it.¹⁸

In the absence of certain required data the Commission conducted and directed its own research and prepared much information for release at a future date. The tables prepared and used in the report bear largely on some of the topics considered in this study, but generally treat the districts en bloc. Where the districts are considered in groups, the

¹⁸Ibid., p. 53.

separation is generally in the census groupings established by the Dominion Bureau of Statistics and uses information collected by that body.

A report¹⁹ by Dr. C. B. Conway of the Division of Tests, Standards and Research of the Department of Education states that the low-enrolment districts also have the lowest pupil retention ratios; that low retention does not, as might be expected, mean high selectivity; that there is a direct relationship between density of population and mean I.Q.; that the number and proportion of high school graduates is more nearly related to the density of population than to the mean I.Q.; that the highest proportion of students with high academic potential is found in districts with less than the maximum enrolment, which are suburban areas and small cities; and that University Entrance Graduation seems to be related to the size of district up to an enrolment that produces two hundred Grade XII students.

In a discussion of the accreditation of secondary schools in British Columbia, F. P. Levirs²⁰ states that accreditation is a device by which a secondary school is encouraged to develop its standards to the point where its recommendations are accepted for graduation in lieu of external examination. It is stated that since it is the better schools

¹⁹C. B. Conway, Educational Effectiveness in Relation to School "Size", Report No. 61/05 (Victoria: Department of Education, 1961), (Mimeographed).

²⁰F. P. Levirs, "The Accreditation of Secondary Schools," The Role of the District Superintendent in Public School Administration in British Columbia (Toronto: The Ryerson Press, 1961).

that are accredited, students from these schools should be better taught and should have better records in school and in university. Such is normally the case, though it is admitted that there are many schools where, although the teaching is considered excellent, accreditation cannot be given for reasons beyond the control of the principal.

Literature Relating to Other Provinces and to Canada in General

Studies bearing on other provinces and on Canada in general are not based on information provided in the provincial Annual Reports of the Departments of Education, but tend to rely on data extracted from the publications of the Dominion Bureau of Statistics.

M. E. LaZerte²¹ made, in 1955, an exhaustive study of trends and conditions affecting school finance in Canada. His general conclusions based on this survey proposed a more equitable scheme of financing and a higher level of foundation programme in the provinces, supplemented by federal aid, in a scheme designed to minimize inter-provincial differences in the quality of the educational programme.

The Saskatchewan Royal Commission on Agriculture and Rural Life Report No. 6²² surveyed demographic and educational trends and conditions in Saskatchewan and concluded that larger units of administration would affect greater efficiency; that integration of urban and rural educational

²¹M. E. LaZerte, School Finance in Canada (Edmonton: The Hamly Press, 1955).

²²Rural Education Report No. 6 (Regina: Queen's Printer, 1956).

facilities would be of benefit to the children; that better training and working conditions for teachers would increase the somewhat inadequate numbers and qualifications of teacher-trainees; that rural and urban property be reassessed to place a smaller proportion of the tax burden on rural taxpayers; that greater provision be made for vocational and adult education; and that an expanded federal programme of financial aid to the provinces be sought.

A study by H. J. Uhlman²³ examined the demographic changes in rural Alberta to 1956, and concluded that since rural youth no longer tended to remain on the farm to the same extent as previously, the standard of education in the farm areas must be made comparable in kind and in quality to that offered in the cities. The bulk of the evidence indicated that, at the time of the study, this was not the case; and that the costs of upgrading rural education must be borne to an increasing degree by the provincial authorities. This study also tended to use the Dominion Bureau of Statistics classifications of areas as urban, rural non-farm and farm types. The nature of the Alberta school district boundaries may be more amenable to this treatment than the present district boundaries in British Columbia. Uhlman's work tended to be more concerned with gross district revenues and expenses than with details of how the revenues were typically disbursed.

²³H. J. Uhlman, Educational Finance in Rural Alberta. (unpublished Doctoral thesis, University of Alberta, Edmonton, 1963).

A study by Ouellette²⁴ paired seven high- with seven low-assessment school divisions in adjacent areas and analysed expenditures and services. He found generally that high assessment areas spent more per pupil on education than did low-assessment areas but that there were only small observed differences in the patterns of services rendered. The small numbers of school divisions involved in this study, and the difficulty of finding adjacent divisions with low- and high-assessments did not permit of any wide generalizations about expenditure patterns.

Generally Related Literature

Valuable discussions on evaluating the quality of educational and financial arrangements were found in Mort and Reusser's Public School Finance.²⁵ In particular, the section on cost analysis²⁶ was most helpful in determining the graphical interpretation of data. Whereas Mort and Reusser recommend that the cost unit be the number of pupils in average daily attendance, this study has used the number of pupils in average daily enrolment, since it was considered that certain expenses will be made without regard to pupils' absences from school. Mort and Reusser appear to have considerable confidence in the relationship between expenditure and the quality of education.

²⁴Lucien L. Ouellette, "Patterns of Public School Expenditures and Services in Selected Areas of Alberta," (unpublished Master's thesis, University of Alberta, Edmonton, 1963).

²⁵Mort and Reusser, op. cit., p. 154 ff.

²⁶Ibid., pp. 253-271.

Today we can speak with considerable confidence.... We can say that we can expect such and such things to occur in a school of a given expenditure level.²⁷

In densely populated areas of the United States this may well be the case.

²⁷Ibid., p. 284.

CHAPTER III

THE DESIGN OF THE STUDY

I. COLLECTION AND TREATMENT OF DATA

Sources of data

Many of the raw data from which evidence related to the research hypothesis was to be presented were available in the Annual Reports of the Public Schools issued by the Department of Education, Province of British Columbia. Those required for this study were the Reports of 1950/1, 1955/6 and 1961/2. These gave details of revenues, expenditures and enrolments in the districts as required for the calculations needed for ranks on variables B, D, F, G, H, I, J, K, L, M, N, O, P, R, S and T listed on pages 8 and 9 supra.

Data relating to the district means of pupil scores in the Provincial Grade VII examinations were given by Dr. C. B. Conway of the Division of Tests, Standards and Research of the Department of Education, Victoria, during the course of an interview.

The areas of the school districts were extracted, in the case of all districts but the unattached small rural districts, from the Report of the C.E.A. - Kellogg Project Advisory Committee entitled School District Organization in British Columbia.²⁸ The areas of the unattached small rural school districts were determined from inspection of maps of British Columbia; the typical unattached small rural school district boundaries

²⁸C. E. A.—Kellogg Report, op. cit., pp. 48-49.

are established by describing a circle of three miles radius from the centre of the village or hamlet. In the cases of such school districts being on the coast, the land area alone was estimated and noted.

The names of accredited schools in each district were obtained during the course of an interview with Mr. F. P. Levirs, Assistant Superintendent, Instructional Services, of the Department of Education, Victoria.

The values of property assessed for school purposes were obtained from the Comptroller's Office of the Department of Education, Victoria.

Representation of the data

The distribution bearing most closely on the research was considered to be the total range within the classes. After the necessary calculations had been made for the eighty-two school districts which were accepted under the delimitations of the study, it was decided to represent the data both in tabular and graphical form to facilitate easy comparisons of districts and classes of districts. Tables were prepared for each of the twenty variables, showing the school districts ranked within their classes from the largest to the smallest on the appropriate quantification.

Graphs were prepared for the same variables again showing the districts ranked within their classes, but with the quantities rounded off as was appropriate to the scale of the graphs. Graphical summaries were then prepared showing the total range within the classes of districts for each of the variables, and in addition the medians and inter-quartile ranges were indicated.

On page Z.27 of the Ninety-first Annual Report for 1961/2 both School District Number 9 and School District Number 12 are named Castlegar. Since all other entries refer to District Number 12 as Grand Forks, it was concluded that the entry on page Z.27 was a misprint, and that these data referred to Grand Forks.

Identification of the districts

Since the unattached small rural school districts are not allotted a number it was considered convenient to allot letters of the alphabet to such districts. The list of all school districts accepted by the delimitations of the study, together with the identifying number or arbitrarily allotted letter, is given in Table I.

These representations of the data were examined in the light of the research hypothesis.

The relations of ranks on two or more variables

The ancillary problems were primarily concerned with the relations of the ranks of the districts on two or more of the variables. Since there were but seven municipal districts and ten unattached small rural districts, and hence it was more probable that apparent relations between the ranks of these classes of districts could occur by chance, attention was focussed on the thirty-two large municipal and the thirty-three large rural schools districts in seeking answers to the ancillary questions.

A technique was devised which seemed suitable for the discovery of relations between ranks of school districts on two or more of the variables. The ranks of the ten highest ranked districts on one variable

TABLE I

NAMES OF THE SCHOOL DISTRICTS WITH OFFICIAL NUMBERS OR LETTERS
ALLOTTED FOR THE RESEARCH, GROUPED BY CLASSES

Large Municipal		Large Rural		Municipal	
No.	Name	No.	Name	No.	Name
1	Fernie	4	Windemere	35	Langley
2	Cranbrook	5	Creston	37	Delta
3	Kimberley	9	Castlegar	38	Richmond
7	Nelson	10	Arrow Lakes	39	Vancouver
8	Slocan	14	S. Okanagan	40	New Westminster
11	Trail	16	Keremeos	41	Burnaby
12	Grand Forks	17	Princeton	45	West Vancouver
13	Kettle Valley	18	Golden		
15	Penticton	25	Barriere		
19	Revelstoke	26	Birch Island		Unattached
20	Salmon Arm	27	Williams Lake		small rural
22	Vernon	28	Quesnel		
23	Kelowna	29	Lillooet	A	Atlin
24	Kamloops	32	Fraser Canyon	B	Bamfield
31	Merritt	46	Sechelt	C	Esperanza
33	Chilliwack	47	Powell River	D	Kyuquot
34	Abbotsford	48	Howe Sound	E	Lower Post
36	Surrey	49	Ocean Falls	F	Sarita River
42	Maple Ridge	50	Queen Charlotte	G	Tahsis River
43	Coquitlam	51	Portland Canal	H	Telegraph Creek
44	North Vancouver	53	Terrace	I	University Hill
52	Prince Rupert	54	Smithers	J	Zeballos
57	Prince George	55	Burns Lake		
61	Greater Victoria	56	Vanderhoof		
63	Saanich	58	McBride		
67	Ladysmith	59	Peace R. South		
68	Nanaimo	60	Peace R. North		
70	Alberni	62	Sooke		
71	Courtenay	66	Lake Cowichan		
75	Mission	69	Qualicum		
76	Agassiz	72	Campbell River		
77	Summerland	73	Alert Bay		
		74	Quatsino		

and within one class of districts were located on the other variable, and the range noted; thus, for example, the ten large municipal districts ranked highest on variable X might range in rank from first to twenty-fifth on variable Y. The smaller this range, the more highly related the two sets of variables were considered to be. Where, within this range, there was a concentration of ranks within the high or the low extremes of the range, appropriate note was taken. Thus, in the illustration above, if within the range of first to twenty-fifth ranks on variable Y, eight of the ten highest ranked districts on variable X ranked in the highest (or lowest) ten districts on variable Y, this was reported and the conclusions drawn that high rank on variable X was related to high (or low) rank on variable Y, though no statement of the degree of relationship other than "strong", "moderate" or "slight" seemed warranted.

CHAPTER IV

SOME PHYSICAL VARIABLES IN THE SCHOOL DISTRICTS

I. THE AREAS OF THE SCHOOL DISTRICTS

The data

The school districts of British Columbia vary in area from 20,000 square miles to seven square miles. The ranges in areas for each of the four classes of school districts were as follows, from Table II and Figures 1 and 2.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	20,000	15,000	150	30
Low	40	160	7	10
Median	495	2,500	44	26

The data related to the hypothesis

It was evident that these ranges were not mutually exclusive, and hence that there were no entire ranges which were distinctive of any of the four classes of school districts. Areas in excess of 15,000 square miles were unique to the Large Municipal Districts, there being one such case; and the areas below ten square miles were unique to the Municipal Districts, again there being one such case.

From Table II and from the summary of areas of classes of school districts on Figure 3, it was apparent that generally the Large Rural School Districts were of greater area than the Large Municipal Districts, though the latter had the greater range in areas.

TABLE II

AREAS IN SQUARE MILES OF SCHOOL DISTRICTS IN 1961/62^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	Area	Rank	District No.	Area	Rank	District No.	Area
1	57	20,000	1	27	15,000	1	38	150
2	19	4,135	2	49	8,000	2	35	124
3	1	3,100	3	28	7,900	3	37	70
4	24	3,000	4	59	6,880	4	39	44
5	31	2,565	5	56	5,941	5	41	42
6	52	2,365	6	51	5,773	6	45	32
7	22	2,000	7	18	5,205	7	40	7
8	15	1,936	8	26	5,100			
9	7	1,500	9	50	4,005			
10	20	1,500	10	55	3,800			
11	8	1,352	11	48	3,572	Unattached small rural		
12	12	1,000	12	47	3,500			
13	71	800	13	73	3,045	1	B	30
14	70	800	14	29	2,937	2	E	28
15	63	600	15	60	2,736	3	F	28
16	11	390	16	53	2,500	4	H	28
17	75	373	17	17	2,500	5	A	28
18	77	285	18	25	2,143	6	J	24
19	68	230	19	72	2,000	7	G	20
20	43	218	20	58	2,000	8	D	15
21	76	172	21	74	1,640	9	I	12
22	3	167	22	46	1,400	10	C	10
23	67	163	23	9	1,000			
24	44	150	24	66	845			
25	36	150	25	4	800			
26	34	150	26	5	800			
27	33	120	27	62	500			
28	13	100	28	69	485			
29	42	96	29	14	481			
30	2	80	30	10	450			
31	23	50	31	16	200			
32	61	40	32	54	200			
			33	32	160			

^aSource: C.E.A.- Kellogg Committee, op. cit., pp. 48-9.

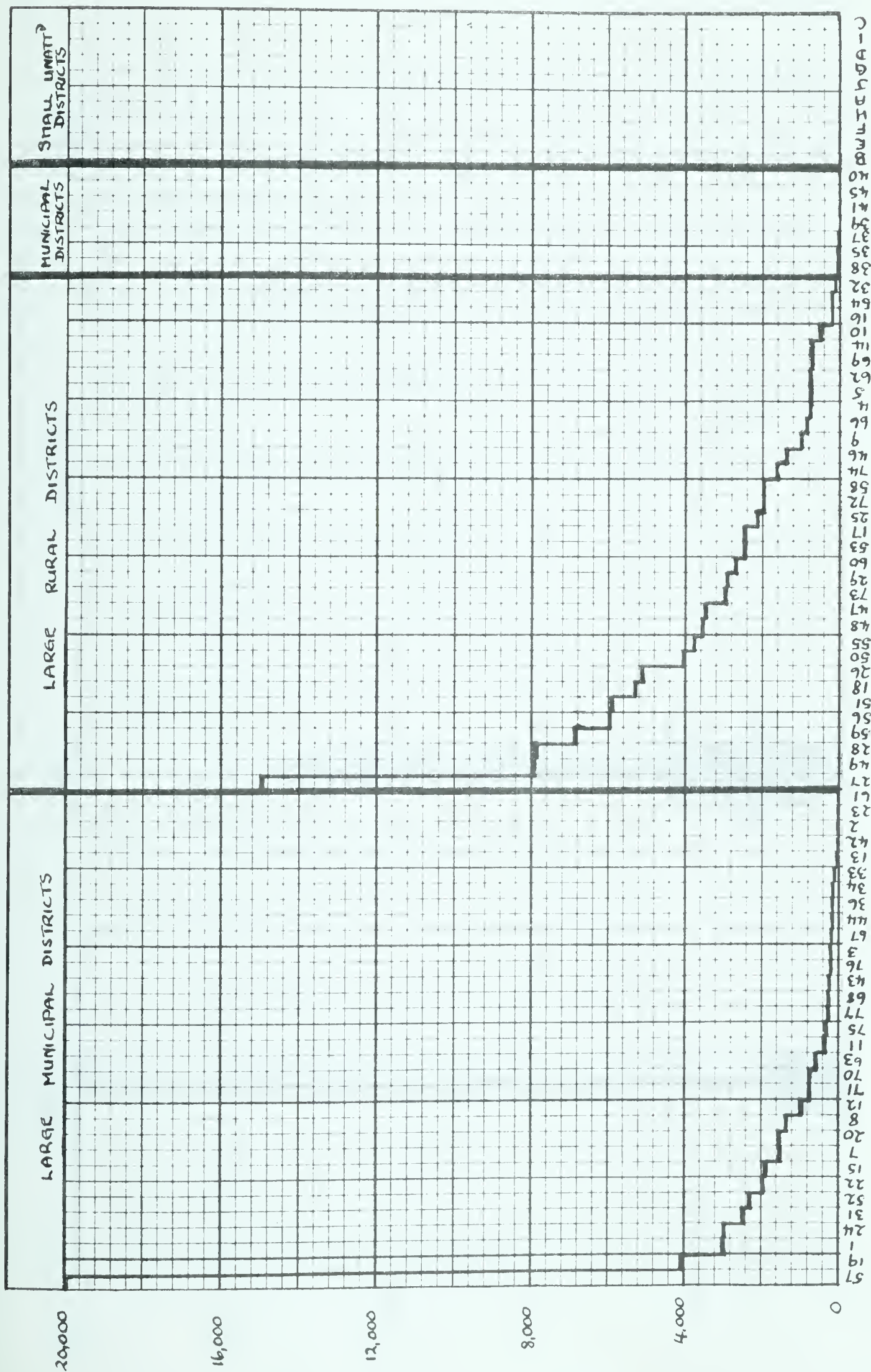


Figure 1. Areas of school districts in square miles 1961/2.

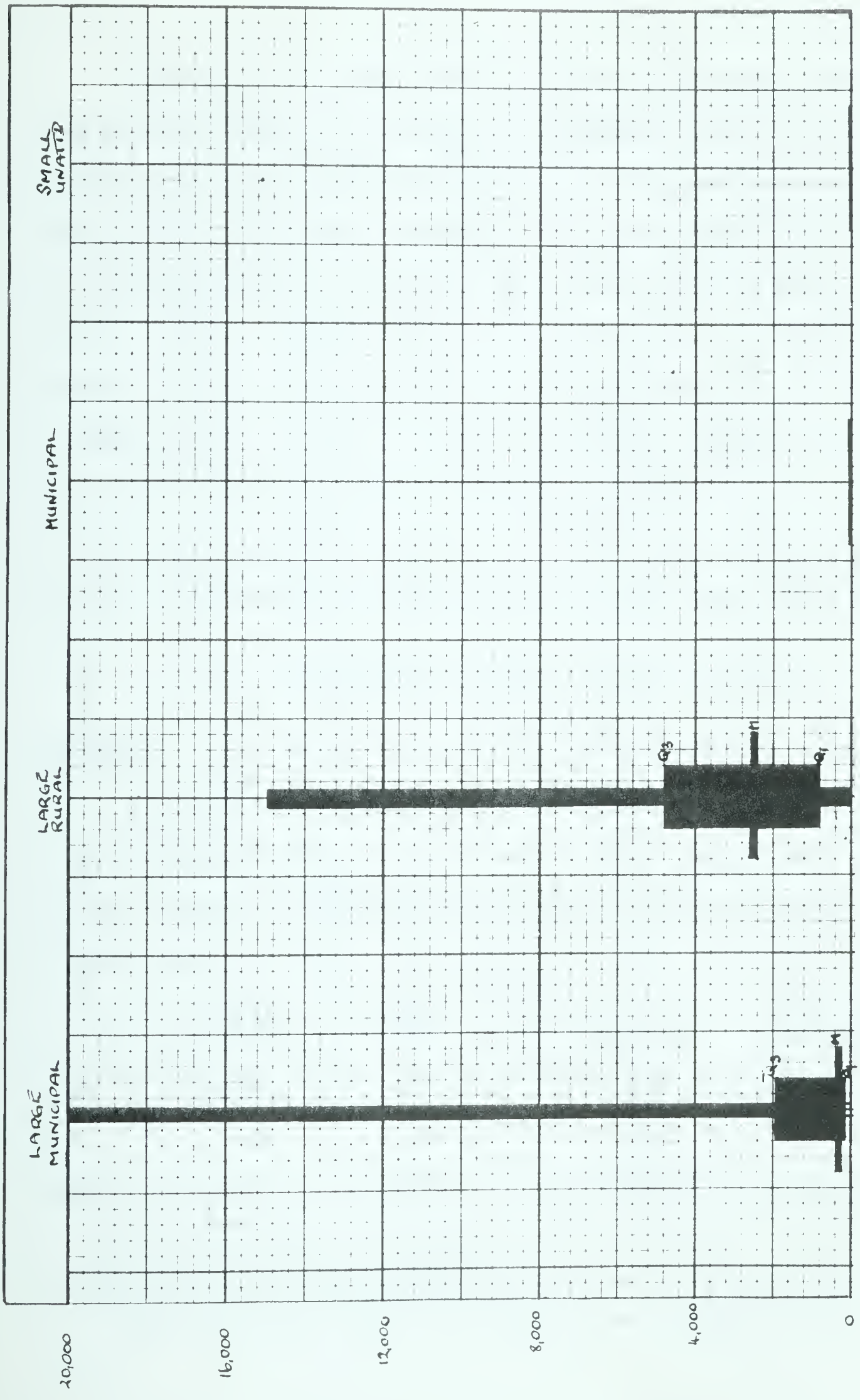


Figure 2. Summary of areas of school districts in square miles by classes of districts.

The map of the school districts of British Columbia, (Appendix A, page 165) indicates that, in general, the areas of school districts increase with the distance from Vancouver, with notable exceptions in the south-central areas where the groups of districts comprising Districts 14, 15, 16 and 77; Districts 7, 8, 9, and 11; and Districts 20, 21 and 78 deviate from this general trend, which corresponds approximately to the decreasing density of population at increasing distances from Vancouver. It appeared that the size of districts had been increased to encompass sufficient numbers of pupils for effective administration to counteract the diminished population density. If this was the case, then those districts ranked highest on pupil enrolment would rank low on area.

II. THE ENROLMENT OF PUPILS IN SCHOOL DISTRICTS

The data

The enrolments of pupils in school districts in 1962 varied from a high of 65,059 pupils to a low of twelve pupils. The ranges in each of the four classes of school districts were as follows, from Table III and Figures 3 and 4.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	23,884	4,525	65,059	575
Low	689	69	3,587	12
Median	3,673	1,204	5,936	37

The data related to the hypothesis

There were thus no distributions of pupil population which were

TABLE III
ENROLMENT OF PUPILS IN SCHOOL DISTRICT IN 1961/62
BY CLASSES OF DISTRICT^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	No.	Rank	District No.	No.	Rank	District No.	No.
1	61	23,884	1	59	4,525	1	39	65,059
2	36	17,673	2	47	3,186	2	41	21,705
3	44	14,216	3	27	2,973	3	38	10,119
4	43	9,152	4	28	2,939	4	40	5,936
5	33	6,707	5	60	2,742	5	45	5,931
6	57	6,641	6	72	2,716	6	35	4,366
7	24	6,589	7	62	2,628	7	37	3,587
8	68	6,304	8	5	2,137			
9	23	5,839	9	53	2,135			
10	11	5,823	10	9	2,132			
11	70	5,348	11	14	1,971			
12	34	4,993	12	46	1,555			
13	42	4,446	13	66	1,465			
14	22	4,367	14	32	1,400			
15	71	3,879	15	54	1,311			
16	15	3,745	16	48	1,242			
17	7	3,601	17	69	1,204			
18	63	3,010	18	56	1,139			
19	52	2,827	19	49	1,092			
20	75	2,780	20	55	1,091			
21	20	2,737	21	4	1,037			
22	2	2,636	22	18	974			
23	3	2,489	23	29	907			
24	67	1,893	24	73	814			
25	1	1,601	25	17	749			
26	19	1,354	26	10	720			
27	31	1,346	27	58	713			
28	77	1,177	28	74	700			
29	12	1,168	29	16	638			
30	8	879	30	26	542			
31	76	731	31	50	514			
32	13	689	32	25	404			
			33	51	69			

Unattached Small Rural		
Rank	District No.	No.
1	I	575
2	G	149
3	H	91
4	B	57
5	J	45
6	D	29
7	E	24
8	F	16
9	A	14
10	C	12

^aSource: Ninety-First Annual Report, op. cit., p. Z.19.

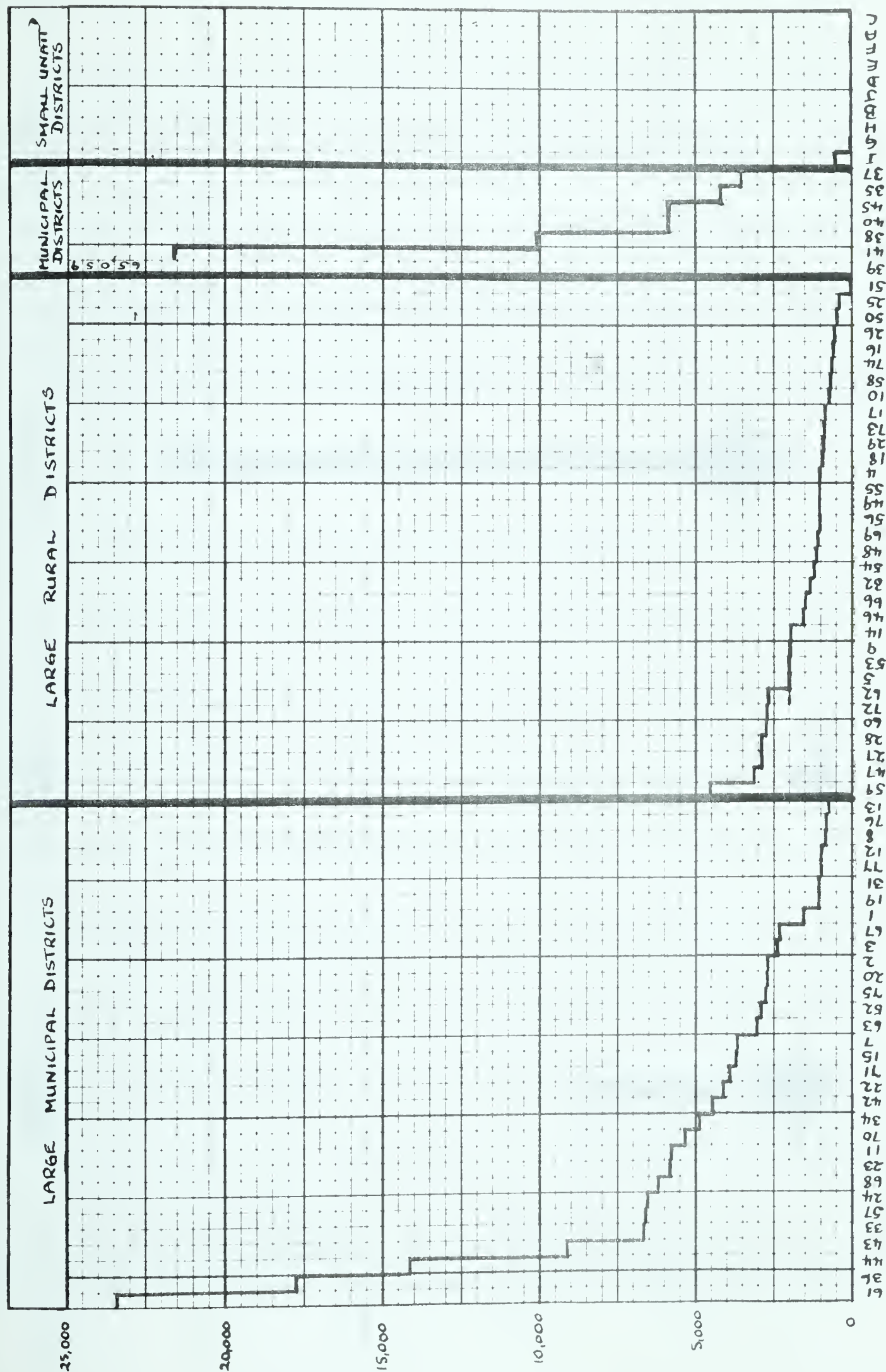


Figure 3. Enrolment of pupils in school districts (excluding District 39) 1961/2.

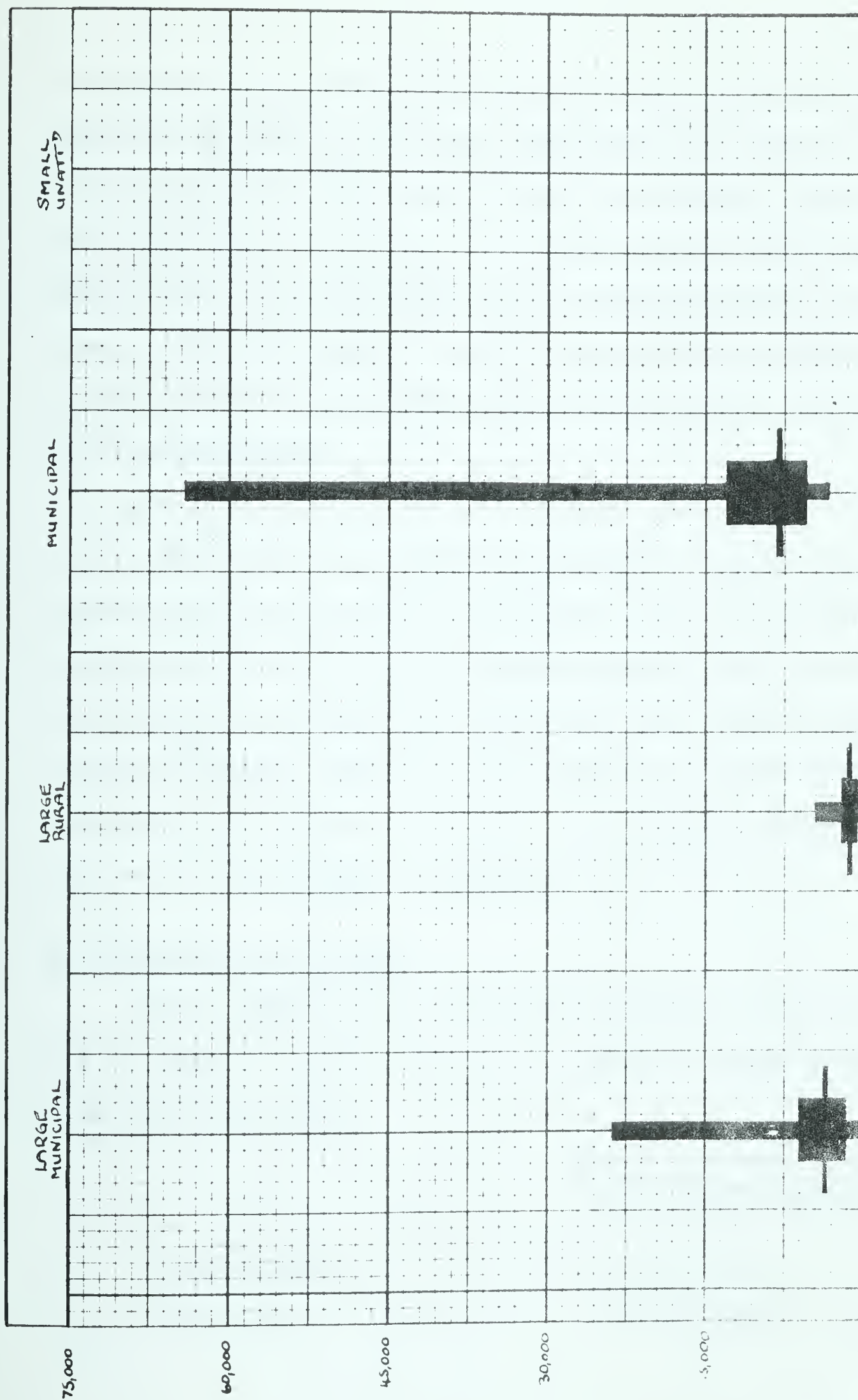


Figure 4. Summary of enrolment in school districts in 1961/2 by classes of districts.

distinctive of any of the four classes of school districts, though that portion of the entire range above 23,884 pupils was unique to the municipal class and that below sixty-nine pupils was unique to the unattached small rural class of districts. It should be noted that the entry for School District No. 39 (Vancouver) is not made graphically, since the scale, if adjusted to permit the entry representing 65,059 pupils, would be such that many of the entries for the low enrolment districts would be indistinguishable.

From the medians indicated in Figure 4 and from the distributions given on Figure 3, it was apparent that generally the Municipal School Districts had pupil enrolments greater than those of the Large Municipal Districts, which had, in turn, enrolments greater than those of the Large Rural Districts, while the Unattached Small Rural Districts had the smallest enrolments. These enrolments appeared to follow reasonable expectation, when the basis of definition of the four classes of districts noted on P. 1 and 2 supra is recalled.

Relations to other variables

When a comparison was made between the areas of districts and the pupil enrolments in the same districts, it did not appear that there was an obvious relationship.

Rank on Enrolment of Ten Highest Ranked Districts on Area

Large Municipal

6th to 27th

Large Rural

9th to 32nd

There was some justification for stating that in the Large Rural Districts, high rank on area appeared to be unrelated to high rank on pupil enrolment. This again does not contradict reasonable expectation. If district area is increased to include sufficient numbers of pupils to permit effective administration, such a guiding principle must be modified to take account of natural features such as rivers, mountains and lakes, and of such artificial but equally powerful influences as normal trading areas which tend to attach a given area of settlement to certain centres of population.

The Municipal and Unattached Small Rural School Districts were omitted from this discussion since their boundaries were arbitrarily set by definition, in the former case, by the fact that the bounds are coterminous with the municipal limits, and in the latter case, by the three mile radius convention.

III. THE PUPIL DENSITY PER SQUARE MILE IN THE SCHOOL DISTRICTS

The data

The densities of pupil population per square mile in the school districts in 1961/2 varied from a high of 1,497 to a low of .01. The ranges in each of the four classes of school districts were as follows, from Table IV and Figures 5 and 6.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	597.0	9.0	1,497.0	57.0
Low	.3	.01	35.0	.5
Median	6.0	.7	185.0	2.0

TABLE IV
PUPIL DENSITY PER SQUARE MILE IN SCHOOL DISTRICTS
IN 1961/2, BY CLASSES OF DISTRICT^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	Density	Rank	District No.	Density	Rank	District No.	Density
1	61	597	1	32	9	1	39	1479
2	36	118	2	54	7	2	40	848
3	23	117	3	62	5	3	41	517
4	44	95	4	14	4	4	45	185
5	13	69	5	16	3	5	38	68
6	33	56	6	5	3	6	37	51
7	42	46	7	69	3	7	35	35
8	43	43	8	9	2			
9	34	33	9	66	2			
10	2	33	10	10	2	Unattached Small Rural		
11	68	27	11	72	1			
12	11	15	12	4	1			
13	3	15	13	46	1	1	I	57
14	67	12	14	60	1	2	G	7
15	75	7	15	47	.9	3	F	5
16	70	7	16	53	.9	4	H	3
17	63	5	17	59	.7	5	J	2
18	71	5	18	74	.4	6	D	2
19	76	4	19	28	.4	7	B	2
20	77	4	20	58	.4	8	C	1
21	7	2	21	48	.4	9	E	1
22	24	2	22	29	.3	10	A	.5
23	22	2	23	17	.3			
24	15	2	24	55	.3			
25	20	2	25	73	.3			
26	52	1	26	27	.2			
27	12	1	27	18	.2			
28	8	.7	28	25	.2			
29	1	.5	29	56	.2			
30	31	.5	30	49	.1			
31	19	.3	31	50	.1			
32	57	.3	32	26	.1			
			33	51	.01			

^aSource: Tables II and III.

^bRounded off to nearest whole number, except below unity when first significant figure given.

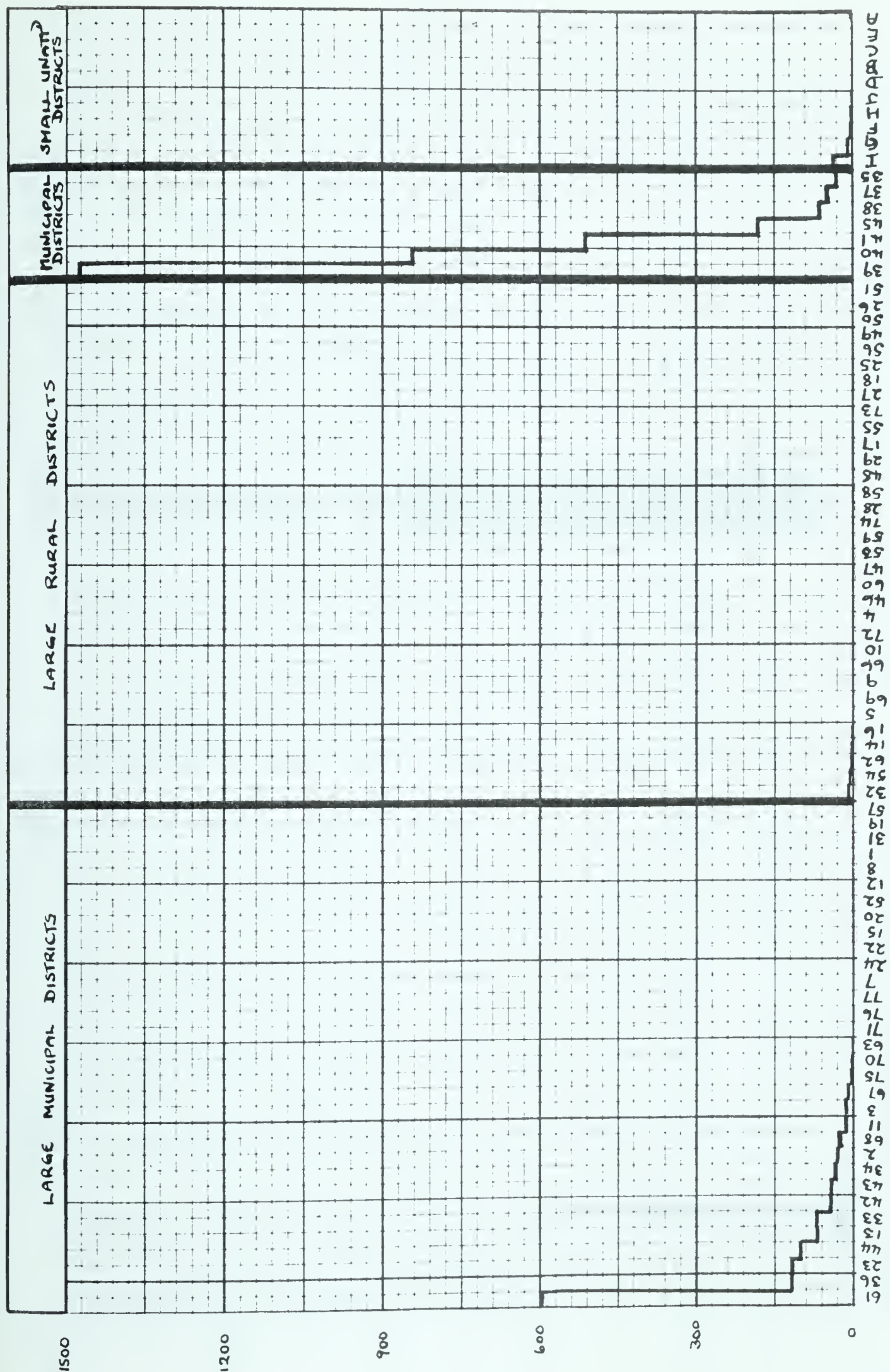


Figure 5. Pupil density per square mile in school districts 1961/2.

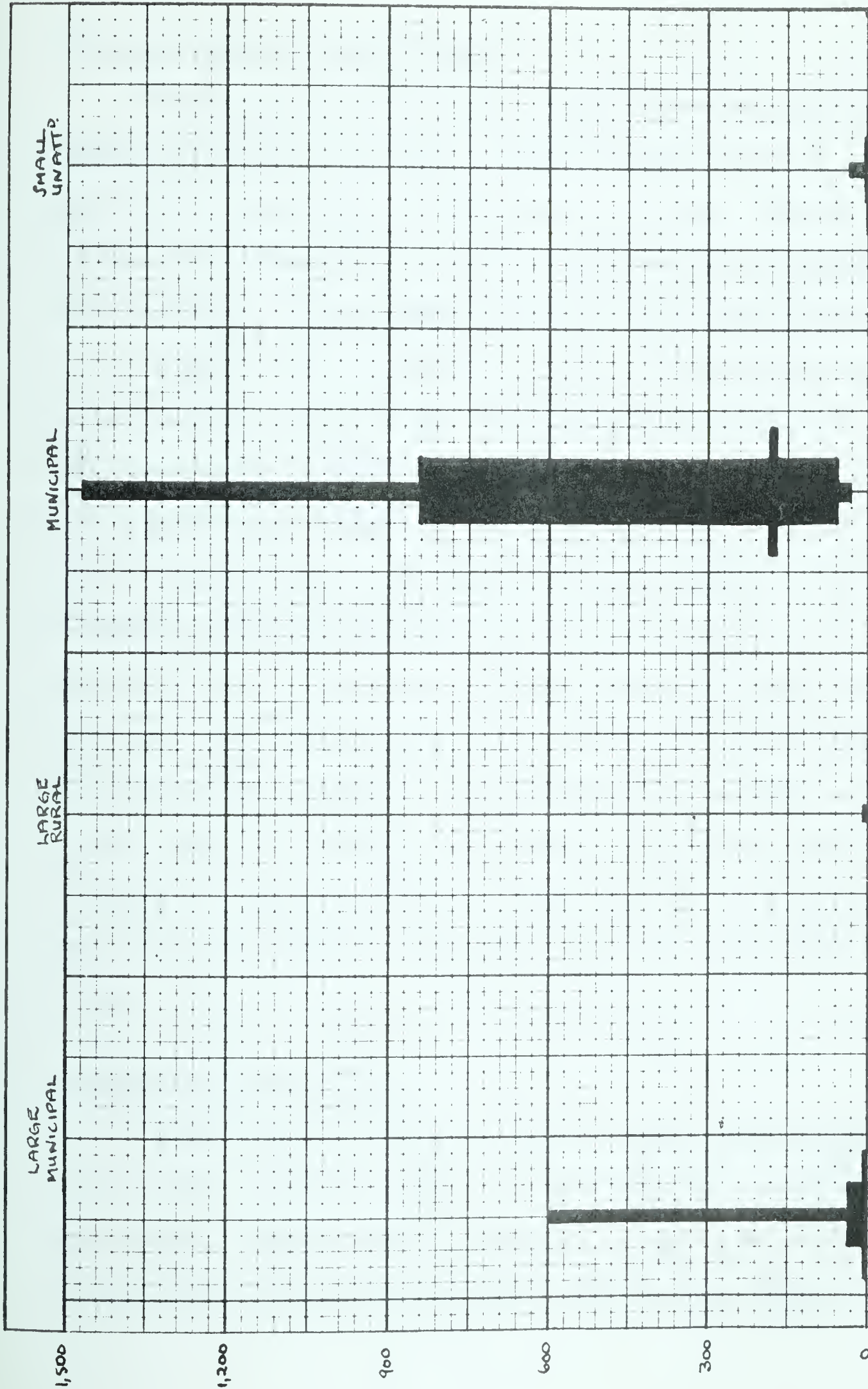


Figure 6. Summary of pupil density per square mile in school districts in +96I/2 by classes of districts.

The data related to the hypothesis

There were no distributions of pupil densities which were distinctive of any of the four classes of school districts, though it was noted that the densities above 597 pupils per square mile were unique to the Municipal School Districts, there being two such districts; and those densities below .3 were unique to the Large Rural School Districts.

In general the distributions of pupil densities per square mile follow reasonable expectation. The Municipal Districts, with relatively small areas and high pupil enrolments, had the greatest pupil densities. The Large Municipal Districts, combine larger areas with pupil enrolments that are fairly high, which resulted in pupil population densities second to those of the Municipal Districts. The Large Rural Districts, with generally large areas and low enrolments, have the lowest median densities. The Unattached Small Rural Districts, with the somewhat exceptional case of District 1 (University Hill) excluded by reason of the fact that it is located in the Vancouver area, and does not follow the three mile radius convention, compensated for low enrolment with low areas, and had a median density much above that of the Large Rural Districts.

Relations to other variables

Comparisons of the district ranks on pupil densities per square mile in Table IV with the ranks on area and on pupil enrolments suggested that the areas rather than the enrolments tended to be the dominant factor in controlling the densities of pupil population per square mile.

	Large Municipal Districts	Large Rural Districts
Range on enrolment of the ten highest ranked districts on density	1st to 32nd	7th to 29th
Range on area of the ten districts ranked highest on density	19th to 32nd	23rd to 33rd

Since the range on area of the ten districts ranked highest on enrolment was rather sharply restricted to the lower ranks it was concluded that in these two large classes of school districts, high pupil density was related more to low areas of the districts than to the numbers of pupils enrolled in them. This is in part accounted for when it is considered that the enrolments of pupils in the districts tend to vary more widely than do the areas of the districts.

IV. THE ANNUAL GROWTH RATE OF PUPIL POPULATION

The data

The remaining physical variable considered in this study is the rate of growth of pupil population in the school districts between 1950/1 and 1961/2, which varied from a high of 24.8 per cent annually to a low of 6.1 per cent annual loss in pupil population. The ranges in each of the four classes of school districts were as follows, from Table V and Figures 7 and 8.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	23.5%	24.8%	20.6%	17.5%
Low	1.5%	.2%	3.2%	- 6.2%
Median	6.8%	9.9%	13.4%	.2%

TABLE V

THE ANNUAL GROWTH RATE OF PUPIL POPULATION FROM 1950/1 TO 1961/2
IN THE SCHOOL DISTRICTS BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	% Rate	Rank	District No.	% Rate	Rank	District No.	% Rate
1	31	23.5	1	27	24.8	1	37	20.6
2	57	21.5	2	60	24.2	2	38	17.8
3	44	17.9	3	50	23.1	3	45	17.8
4	36	16.3	4	53	19.4	4	41	13.4
5	43	15.2	5	4	16.8	5	35	5.9
6	24	12.7	6	28	16.4	6	39	5.3
7	63	10.3	7	74	16.4	7	40	3.2
8	42	9.5	8	18	15.6	Unattached Small Rural		
9	68	9.4	9	59	14.1			
10	61	9.1	10	72	12.4			
11	70	8.8	11	62	12.2			
12	2	8.2	12	26	12.2	1	G	17.5
13	20	7.4	13	73	11.2	2	I	10.3
14	52	7.4	14	56	11.2	3	D	8.5
15	71	6.9	15	54	11.1	4	F	7.1
16	15	6.9	16	25	10.8	5	J	.6
17	33	6.6	17	55	9.9	6	C	— .2
18	67	6.5	18	48	9.9	7	H	— .3
19	19	6.4	19	46	8.4	8	B	— .7
20	77	5.4	20	9	8.4	9	A	—3.3
21	76	5.3	21	58	8.2	10	E	—6.1
22	3	5.1	22	32	7.4			
23	7	5.1	23	47	7.2			
24	34	4.9	24	49	6.5			
25	75	4.9	25	29	6.0			
26	13	4.5	26	5	5.2			
27	22	4.1	27	69	4.1			
28	23	4.0	28	66	3.4			
29	12	3.6	29	10	3.4			
30	11	2.6	30	14	2.8			
31	1	2.2	31	16	.9			
32	8	1.5	32	51	.3			
			33	17	.2			

^aSource: Annual Reports, op. cit., 1950/1 and 1961/2



Figure 7. Annual growth rate of pupil population in school districts 1950/1 to 1961/2.

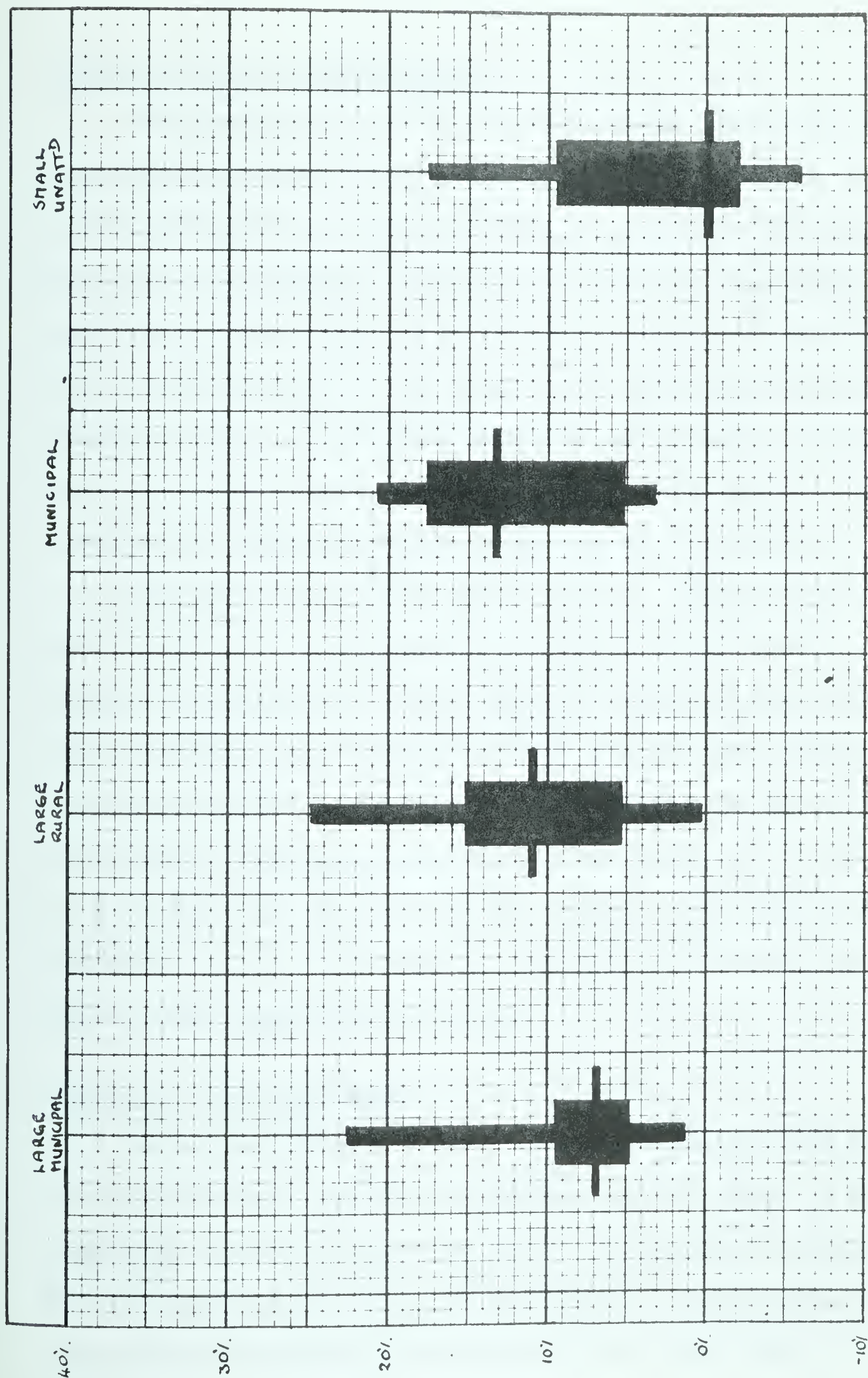


Figure 8. Summary of annual growth rate of pupil population in school districts 1950/I to 1961/2 by classes of districts.

The data related to the hypothesis

There were thus no distributions of annual growth rate of pupil population which were distinctive of any of the four classes of school districts, though the range above 23.5% was unique to the Large Rural Districts, there being two such districts; and the range below 1.5 per cent annual growth, inclusive of all districts which showed an annual loss of pupil population, was unique to the Unattached Small Rural School Districts. It should be noted that both Figures 7 and 8 originate from a base line of minus ten per cent annual growth; that is, indicating a net loss of pupil population over the eleven year period.

From Table V and from Figures 7 and 8 it appeared clear that the Municipal Districts had generally the highest rate of growth, followed closely by the Large Rural School Districts. Each of the four classes of school districts contained samples which had an average growth in pupil population in excess of 17.5 per cent, which indicated that high rate of growth was not confined to any one class of districts. It was noted that the Large Municipal Districts had the smallest range between the semi-interquartile limits; and that the Unattached Small Rural Districts had a median closely approximating to zero.

Relations to other variables

No pattern was detected which served to explain these distributions of rates of growth. Nearness to Vancouver did not appear to be a factor, since both District 44 (North Vancouver) and District 60 (Peace River North) had high growth rates, and both District 39 (Vancouver) and District 40 (New Westminster) had relatively low growth rates.

V. SUMMARY OF THE FINDINGS RELATED TO THE PHYSICAL VARIABLES

The four physical variables considered in this chapter were the areas of the districts, the enrolments of pupils in the districts, the densities of pupil populations per square mile in the districts, and the growth rates of pupil enrolments in the districts. In the case of all four variables the null hypothesis was upheld; there were no distributions which were distinctive of any of the four classes of school districts. Comparisons of the median ranks of each class of school districts on the four physical variables does, however, tend to distinguish the classes from each other.

	Values of median rank			
	Large Municipal	Large Rural	Municipal	Unattached Small Rural
Areas in square miles	495	2,500	44	26
Pupil population	3,673	1,204	5,936	37
Pupil density per square mile	6.0	.7	185	2.0
Annual growth rate of pupil population	6.8%	9.9%	13.4%	.2%

If the median is accepted as the best measure of central tendency, then it may be stated that in general the Municipal Districts had small areas, high enrolments of pupil population and hence high densities of pupil population per square mile; in addition this class of district had the highest growth rates of pupil population of the four classes of school districts.

The Large Municipal Districts in general had areas much greater

than those of the Municipal Districts, enrolments typically somewhat smaller than those of the Municipal Districts, and hence had densities of pupil population somewhat smaller than those of the Municipal Districts. The growth rates in pupil populations in the Large Municipal Districts were typically about half those of the Municipal Districts.

The Large Rural Districts in general had areas approximately five times those of the Large Municipal Districts, and pupil populations of approximately one third of those found in the Large Municipal Districts. This resulted in pupil densities per square mile which were the lowest of the four classes of school districts. This was accompanied by typically high growth rates in pupil populations in the districts.

The Unattached Small Rural Districts in general had small areas and low pupil populations which resulted in densities of pupil population somewhat high than those of the Large Rural Districts. The growth rates of pupil populations in this class of districts were typically low, and indeed five of the ten districts which comprise this class had declining pupil populations.

CHAPTER V

SOME FINANCIAL VARIABLES IN THE SCHOOL DISTRICTS

I. THE SELECTION OF THE FINANCIAL VARIABLES

The financial variables were selected in the light of certain pre-determined criteria:

- a. The sums involved must be stated in the Annual Reports of the Department of Education, or else be readily available from officials of that Department.
- b. The total revenues for each school district must be given, and in addition the portions of the revenue drawn from both the local contributions and from the provincial grants were required in order to test the effect that high and low assessments per pupil had on expenditures.
- c. The selection of financial variables confined the expenditures used in this study to those which appeared to bear most strongly on the instructional programme, which appeared sufficiently large in amount to involve a considerable proportion of the total expenditures; and which also might serve to distinguish the classes of districts from each other. Of the ten expenditure headings given in the Annual Reports, seven were included in this study.
- d. The variables selected were such as gave an adequate representation of the major factors in educational finance in the districts, including the local taxable resources, the annual growth in total expenditures, and the major expense accounts. These financial variables were used both in seeking information bearing on the research hypothesis and in seeking possible answers to the

ancillary questions which, in general, bear on the relations of the physical, financial and educational variables to each other, both within and between these classifications.

II. THE ASSESSMENTS PER PUPIL IN SCHOOL DISTRICTS IN 1961/2

The data

The values per pupil of property assessable for school taxation purposes in the school districts varied from a high of \$53,000 to a low of \$500. The ranges in each of the four classes of school districts were as follows, from Table VI and from Figures 9 and 10.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 13,400	\$ 53,000	\$ 13,200	\$ 26,600
Low	4,400	3,000	5,400	500
Median	6,900	6,800	9,900	4,450

The data related to the hypothesis

There were no distributions of assessment values per pupil which were distinctive of any of the four classes of school districts. The Large Rural School Districts had by far the greatest range, and also that range above \$26,600 was unique to this class of districts, there being one such case. The Municipal School Districts had the smallest range, but it was noted that eight Large Rural Districts had assessment values higher than that of the highest Municipal District. The assessment values in the large Municipal Districts exhibited a range only slightly greater than those of the Municipal Districts. That

TABLE VI

THE ASSESSMENT PER PUPIL ENROLLED IN SCHOOL DISTRICTS IN
1961/62 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	Asst. ^b \$000	Rank	District No.	Asst. \$000	Rank	District No.	Asst. \$000
1	52	13.4	1	29	53.0	1	39	13.2
2	11	11.5	2	48	21.4	2	40	11.7
3	68	11.0	3	74	20.2	3	45	11.1
4	76	11.0	4	66	16.3	4	37	9.9
5	70	10.0	5	49	16.1	5	41	9.2
6	43	9.2	6	47	16.0	6	38	7.5
7	61	9.1	7	46	15.2	7	35	5.4
8	44	8.1	8	72	13.3	Unattached Small Rural		
9	64	8.0	9	9	12.7			
10	7	8.0	10	51	11.4			
11	3	7.9	11	60	10.5			
12	63	7.7	12	69	9.7	1	F	26.6
13	15	7.7	13	26	9.1	2	G	13.7
14	23	7.4	14	73	8.6	3	I	12.9
15	31	7.0	15	62	7.5	4	A	12.6
16	24	7.0	16	32	7.2	5	B	4.7
17	36	6.8	17	58	6.8	6	J	4.2
18	1	6.8	18	17	6.4	7	D	4.0
19	67	6.7	19	25	5.7	8	C	3.0
20	8	6.7	20	14	5.5	9	E	1.3
21	33	6.4	21	5	5.4	10	H	.5
22	13	6.2	22	59	5.4			
23	57	6.1	23	27	5.1			
24	34	6.0	24	16	4.8			
25	42	5.8	25	28	4.7			
26	22	5.8	26	4	4.6			
27	77	5.7	27	50	4.1			
28	71	5.4	28	53	4.1			
29	19	5.4	29	10	3.9			
30	12	5.1	30	56	3.8			
31	2	4.6	31	54	3.6			
32	20	4.4	32	18	3.5			
			33	55	3.0			

^aSource: Department of Education, Victoria

^bRounded off to nearest \$100.

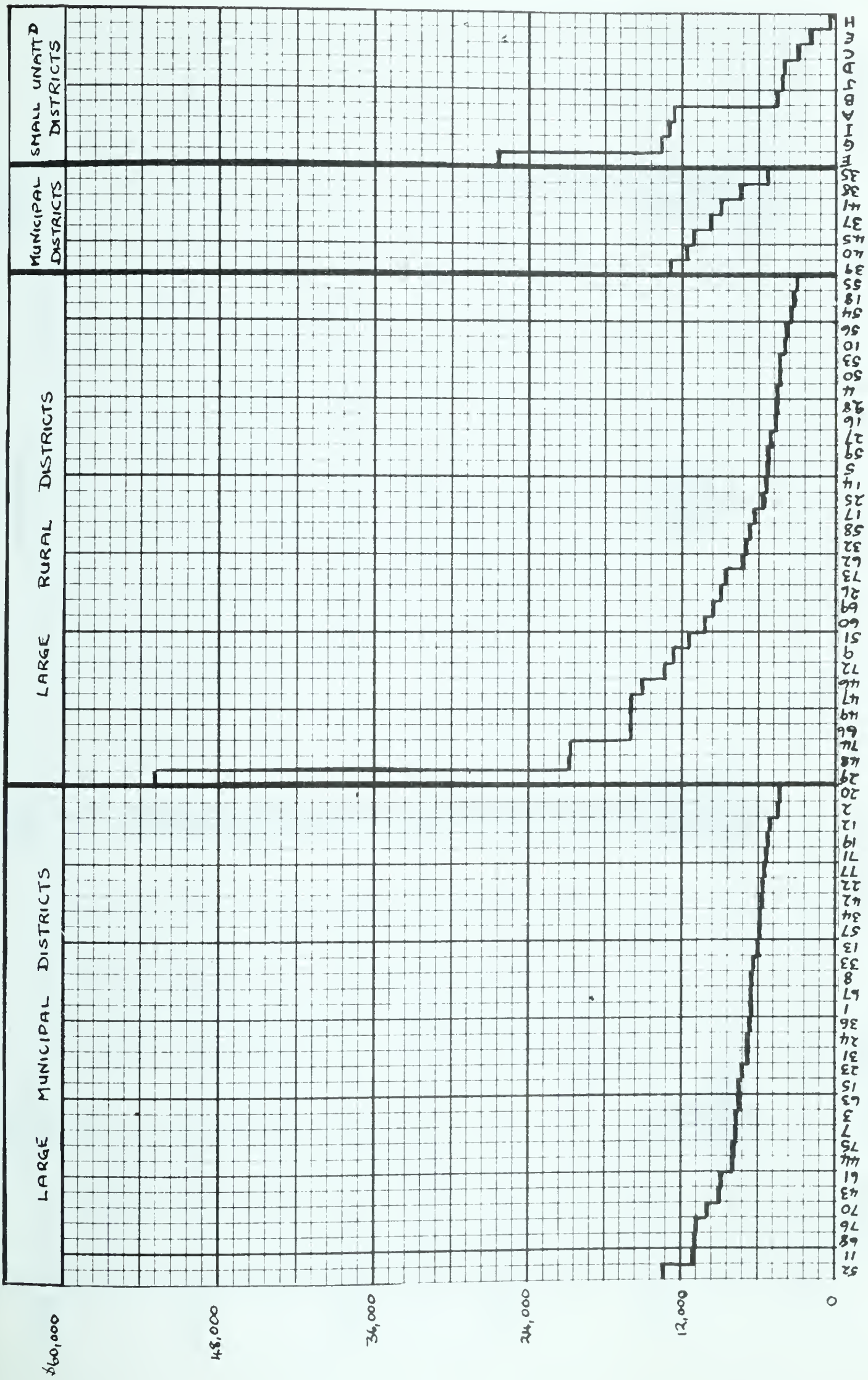


Figure 9. Assessment per pupil in school districts 1961/2.

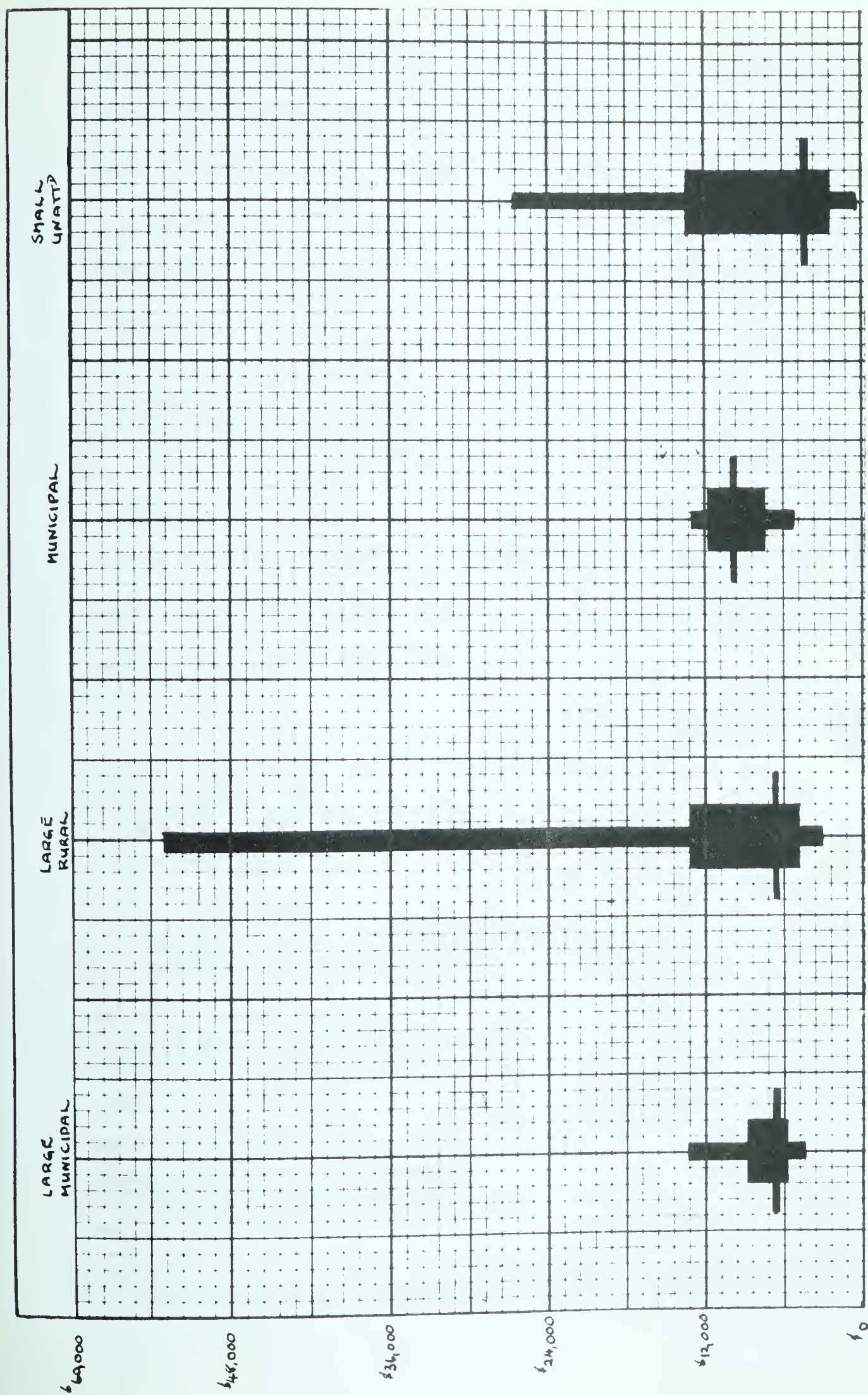


Figure 10. Summary of assessment per pupil in school districts 1961/2 by classes of districts.

portion of the range below \$3,000 per pupil was unique to the Unattached Small Rural Districts. The class of Districts which in general contained the highest assessment values per pupil was that of the Large Rural Districts; that class of district which had the lowest assessment values per pupil was that of the Unattached Small Rural Districts.

Relations to other variables

It was considered reasonable that the assessment values might be related to the areas, the enrolments, the pupil densities per square mile and to the annual growth rate of pupil population in the districts. Comparisons were therefore made, involving the Large Municipal and Large Rural School Districts.

	Large Municipal Districts	Large Rural Districts
Range on areas of districts of the ten districts ranked highest on assessment values per pupil	6th to 32nd	2nd to 24th
Range on enrolments in districts of the ten districts ranked highest on assessment values per pupil	1st to 31st	2nd to 32nd
Range on pupil densities per square mile of the ten districts ranked highest on assessment values per pupil	1st to 26th	8th to 33rd
Range on growth rate of pupil population of the ten districts ranked highest on assessment values per pupil	3rd to 30th	7th to 32nd

There was no evidence that assessment values per pupil in the

school districts in 1961/2 were related to the areas, the enrolments, the densities of pupil population per square mile or to the growth rate in pupil population in the districts.

The high assessment values per pupil observed in certain of the Large Rural School Districts may not be caused, as might appear to be natural, by moderate property values divided by small enrolments resulting in high values per pupil, but by the location and development of some special industry such as mining, pulp and paper mills, or of coastal fisheries and canneries.

III. THE TOTAL EXPENDITURES PER PUPIL ENROLLED IN THE SCHOOL DISTRICTS IN 1961/2

The data

The total expenditures per pupil enrolled in the school districts in 1961/2 varied from a high of \$892 to a low of \$287. The ranges in each of the four classes of school districts were as follows, from Table VII and Figures 11 and 12.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 441	\$ 547	\$ 434	\$ 892
Low	287	317	349	313
Median	354	413	354	578

The data related to the hypothesis

There were no distributions of total expenditures per pupil which were distinctive of any of the four classes of school districts; though that portion of the entire range above \$547 was unique to the

TABLE VII

THE TOTAL EXPENDITURES PER PUPIL ENROLLED IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF SCHOOL DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	\$ ^b	Rank	District No.	\$	Rank	District No.	\$
1	8	441	1	49	547	1	39	434
2	67	411	2	48	522	2	45	413
3	1	403	3	46	507	3	35	369
4	24	397	4	29	496	4	50	354
5	68	389	5	73	450	5	37	353
6	11	380	6	25	449	6	38	352
7	19	377	7	47	444	7	41	349
8	13	374	8	50	441			
9	7	372	9	51	438			
10	75	369	10	74	437			
11	23	368	11	69	428			
12	71	365	12	17	428			
13	44	361	13	54	424			
14	76	361	14	58	419			
15	22	360	15	55	418			
16	20	356	16	26	417			
17	3	351	17	10	413			
18	57	351	18	60	407			
19	61	348	19	28	406			
20	63	340	20	4	406			
21	42	335	21	9	396			
22	52	333	22	53	394			
23	43	327	23	66	394			
24	15	325	24	27	393			
25	34	322	25	56	392			
26	77	318	26	16	380			
27	12	316	27	5	377			
28	2	307	28	59	368			
29	31	305	29	14	366			
30	70	297	30	32	366			
31	33	296	31	62	364			
32	36	287	32	72	357			
			33	18	317			
						Unattached Small Rural		
						1	F	892
						2	A	854
						3	C	754
						4	D	661
						5	J	606
						6	B	550
						7	I	546
						8	E	484
						9	G	460
						10	H	313

^aSource: Annual Report, 1961/62, op. cit., p. Z.27,28,29.

^bRounded off to nearest dollar.

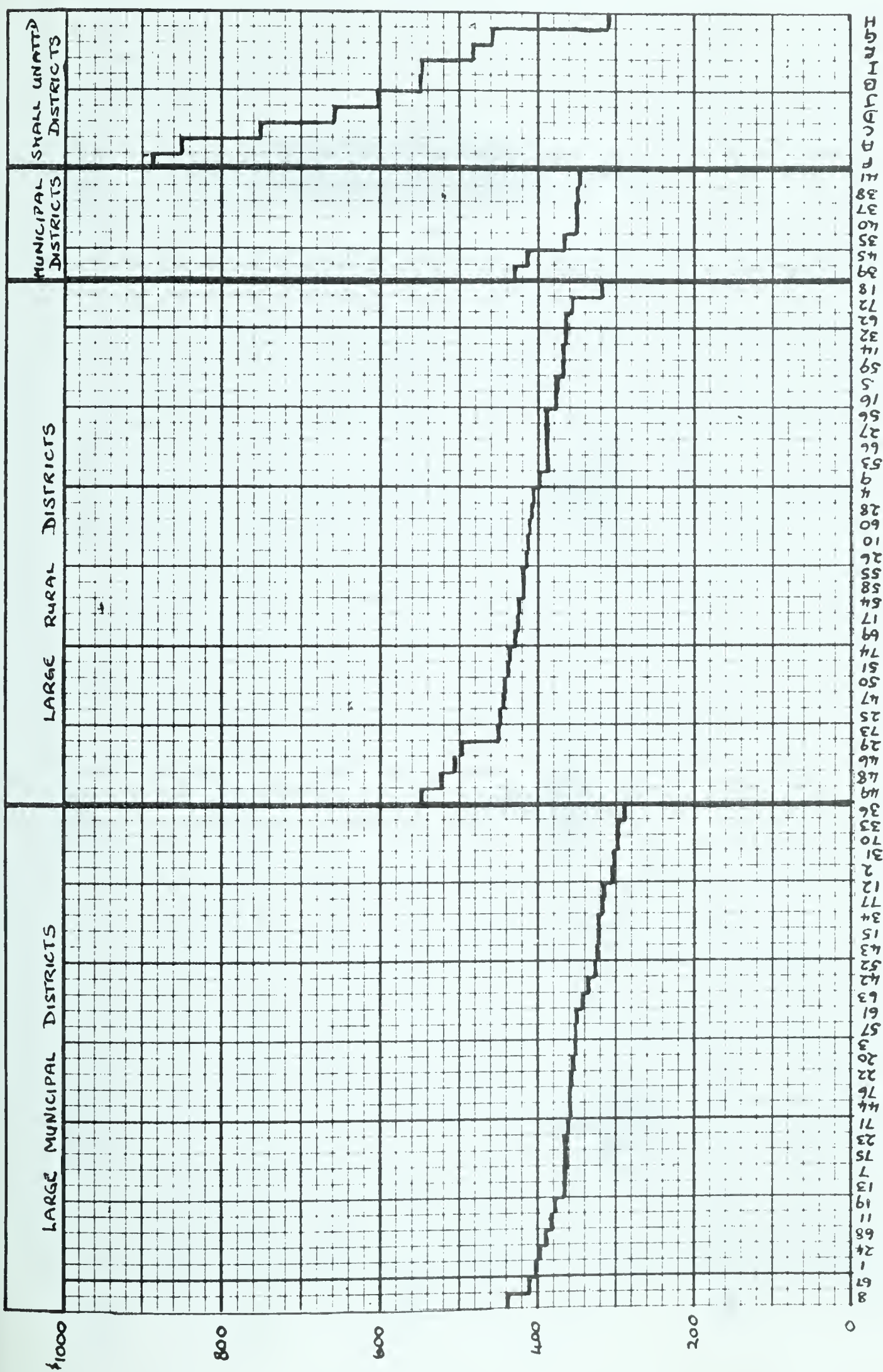


Figure II. Total expenditures per pupil in school districts 1961/2.

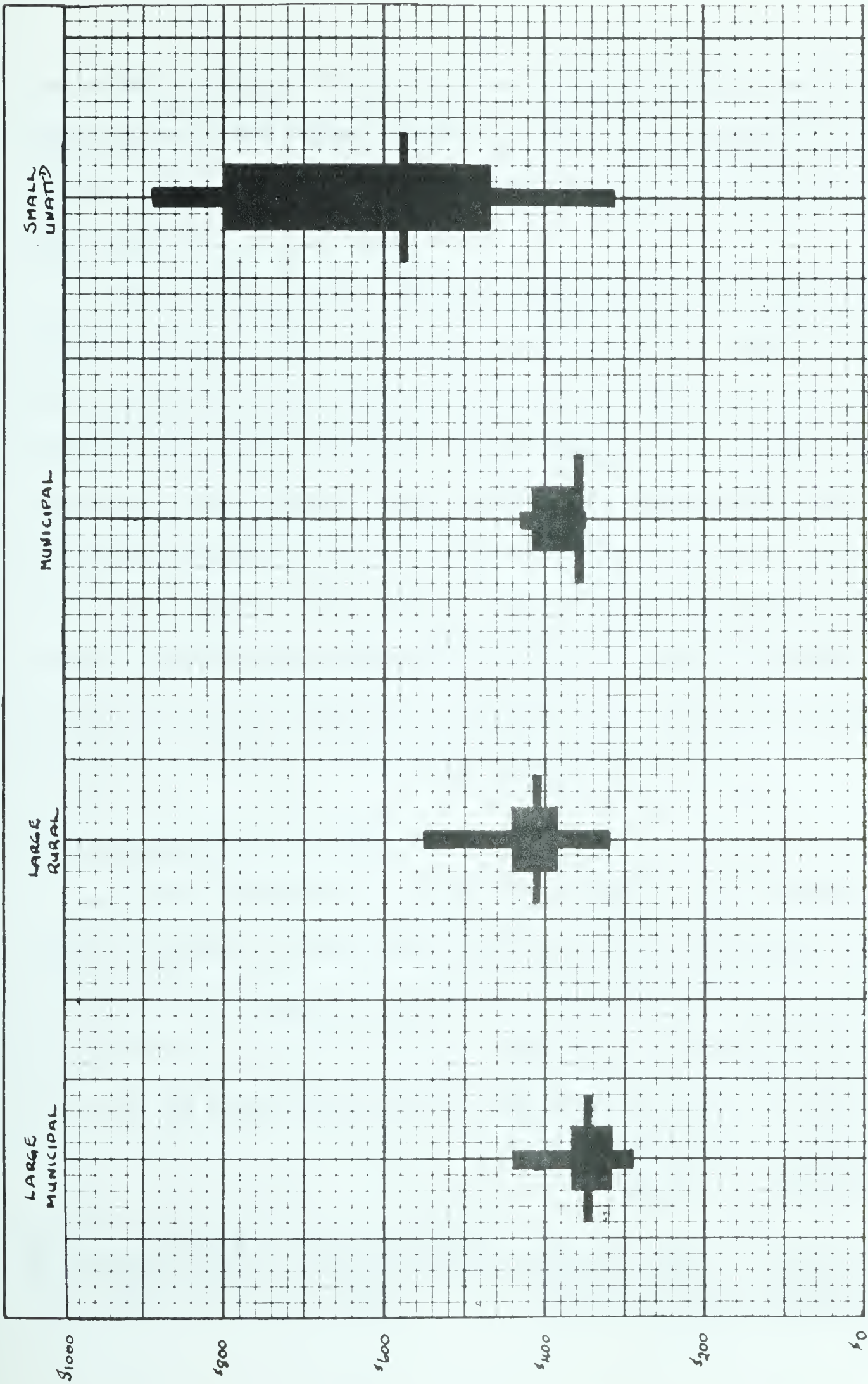


Figure I2. Summary of total expenditures per pupil in school districts 1961/2 by classes of districts.

Unattached Small Rural School District, there being six such cases in that portion of the range; and that portion of the range below \$313 was unique to the Large Municipal Districts, there being one such case in that range.

The ranges in total per pupil expenditures was unexpectedly large; \$579 in the Unattached Small Rural School Districts; \$230 in the Large Rural School Districts; \$154 in the Large Municipal Districts; and \$85 in the Municipal School Districts; the differences within groups were greater than those found between groups, tending to indicate that these wide variations affected all four classes of school districts. At the same time it was apparent that high per pupil expenditures found in school district classes were associated first with the Unattached Small Rural Districts, next with the Large Rural Districts, then with the Municipal Districts, and last with the Large Municipal Districts.

Relations to other variables

It was considered reasonable that high per pupil expenditures might be related to assessment values per pupil, to enrolments of pupils, to growth rates of pupil populations, to pupil densities per square mile and to areas of school districts. Comparisons were therefore made, involving the Large Municipal and Large Rural classes of Districts.

	Large Municipal Districts	Large Rural Districts
Range on assessment values per pupil of the ten districts ranked highest on total expenditures per pupil	2nd to 29th (with 4 ranked in highest 10)	1st to 27th (with 7 ranked in highest 10)

	Large Municipal Districts	Large Rural Districts
Range on enrolments of pupils in school districts of the ten districts ranked highest on total expenditures per pupil	7th to 32nd	2nd to 33rd
Range on growth rates of pupil population of the ten districts ranked highest on total expenditures per pupil	6th to 32nd	3rd to 32nd
Range on densities of pupil population per square mile of the ten districts ranked highest on total expenditures per pupil	5th to 31st	13th to 33rd
Range on areas of school districts of the ten districts ranked highest on total expenditures per pupil	2nd to 28th	2nd to 22nd

On the basis of these comparisons it appeared that there was little foundation for suggesting that high total expenditures per pupil were at all closely related to assessment values per pupil, to the enrolments of pupils, to annual growth rates of pupil populations, to the densities of pupil populations per square mile or to the areas of the districts. There was some evidence that high total expenditures per pupil in the Large Rural Districts tended to be associated with high assessment values per pupil, but it could not be stated that the former was conditional on the latter.

It was noted that Districts 72, 4 and 46 each had a pupil density of one (1) per square mile, but that their respective per pupil total expenditures were \$357, \$406 and \$507, affording additional evidence that total expenditures per pupil seemed unrelated to the densities of pupil population per square mile.

The evidence considered suggests that the answer to the ancillary question Number 4 was in the negative. There was no evidence to support the assumption that districts which had high pupil enrolments operated more cheaply than those districts which had lesser enrolments. Vancouver, which had the highest enrolment of all the school districts, had the highest per pupil total expenditure in the class of Municipal Districts.

It was possible to state that, in the Unattached Small Rural Districts, very high total expenditures per pupil obtained generally, though one district (H) with an enrolment of 91 pupils operated on a total expenditure per pupil of \$313. No explanation is offered for this low expenditure.

IV. THE ANNUAL GROWTH RATES OF TOTAL EXPENDITURES PER PUPIL FROM 1955/6 to 1961/2

The annual growth rate of total expenditures per pupil in the school districts may reflect the workings of a number of factors. Among these may be included the expansion of the educational facilities to accommodate an increased pupil population, the improving of existing facilities to keep pace with modern educational advances and improvements, and the natural increases in expenditures which might reasonably be expected to compensate for the inflationary tendencies of the economy. No effort was made to distinguish these three factors in the examination of growth rates of total expenditures in the school districts.

The data

The annual growth rates of total expenditures per pupil varied from a high of 55.1 per cent to a low of zero per cent annually. The

ranges for each of the four classes of school districts were as follows, from Table VIII and Figures 13 and 14.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	40.8%	30.7%	55.1%	29.2%
Low	6.6%	0.0%	10.5%	5.6%
Median	17.5%	13.7%	27.0%	13.4%

The data related to the hypothesis

There were no distributions of annual growth rates in expenditures which were distinctive of any of the four classes of school districts, though that portion of the range above 40.8 per cent annual growth was unique to the Municipal Districts, there being one such case in that range; and that portion of the range below 5.6% annual growth rate was unique to the Large Rural Districts, there being again one such case in that range.

From Figure 14 it was apparent that the Municipal Districts exhibited much the greatest range in annual growth rates per pupil and that this class of districts also had the highest median rate. The medians of the other three classes were in the order Large Municipal, Large Rural and Unattached Small Rural School Districts.

Relations to other variables

Comparisons were made to test whether the annual growth rates of total expenditures per pupil were related to the annual growth rates of pupil population in the districts.

TABLE VIII

THE ANNUAL GROWTH RATE OF TOTAL EXPENDITURES PER PUPIL
ENROLLED IN SCHOOL DISTRICTS FROM 1955/6 TO
1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	% Growth	Rank	District No.	% Growth	Rank	District No.	% Growth
1	44	40.8	1	4	30.7	1	37	55.1
2	36	35.7	2	60	26.9	2	38	39.3
3	43	32.2	3	27	22.1	3	45	31.3
4	31	30.7	4	46	21.2	4	41	27.0
5	57	29.3	5	50	19.6	5	35	20.9
6	24	26.9	6	53	19.1	6	39	11.4
7	42	20.3	7	48	18.8	7	40	10.5
8	19	19.3	8	47	18.2			
9	70	18.9	9	25	19.1			
10	23	18.6	10	18	17.3			
11	20	18.1	11	59	17.1			
12	68	18.0	12	28	16.8			
13	61	17.8	13	32	16.6			
14	13	17.6	14	55	15.7			
15	63	17.6	15	49	15.6			
16	2	17.4	16	54	15.0			
17	71	16.7	17	9	13.7			
18	75	16.5	18	10	13.4			
19	22	16.2	19	72	12.5			
20	52	16.1	20	73	12.5			
21	77	16.0	21	74	12.4			
22	67	16.0	22	26	11.4			
23	15	15.3	23	56	11.3			
24	8	14.3	24	5	10.8			
25	34	13.7	25	14	10.7			
26	3	13.5	26	62	10.6			
27	33	12.9	27	58	9.6			
28	12	10.7	28	66	6.7			
29	7	10.6	29	16	6.3			
30	76	9.7	30	69	6.2			
31	11	7.8	31	29	5.9			
32	1	6.6	32	17	5.6			
			33	51	.0			

Unattached Small Rural		
Rank	District No.	% Growth
1	D	29.2
2	F	27.4
3	A	15.1
4	J	14.3
5	I	13.4
6	G	13.3
7	C	9.4
8	B	8.8
9	E	8.5
10	H	5.6

^aSource: Annual Reports, 1955/6 and 1961/2. op. cit., passim.

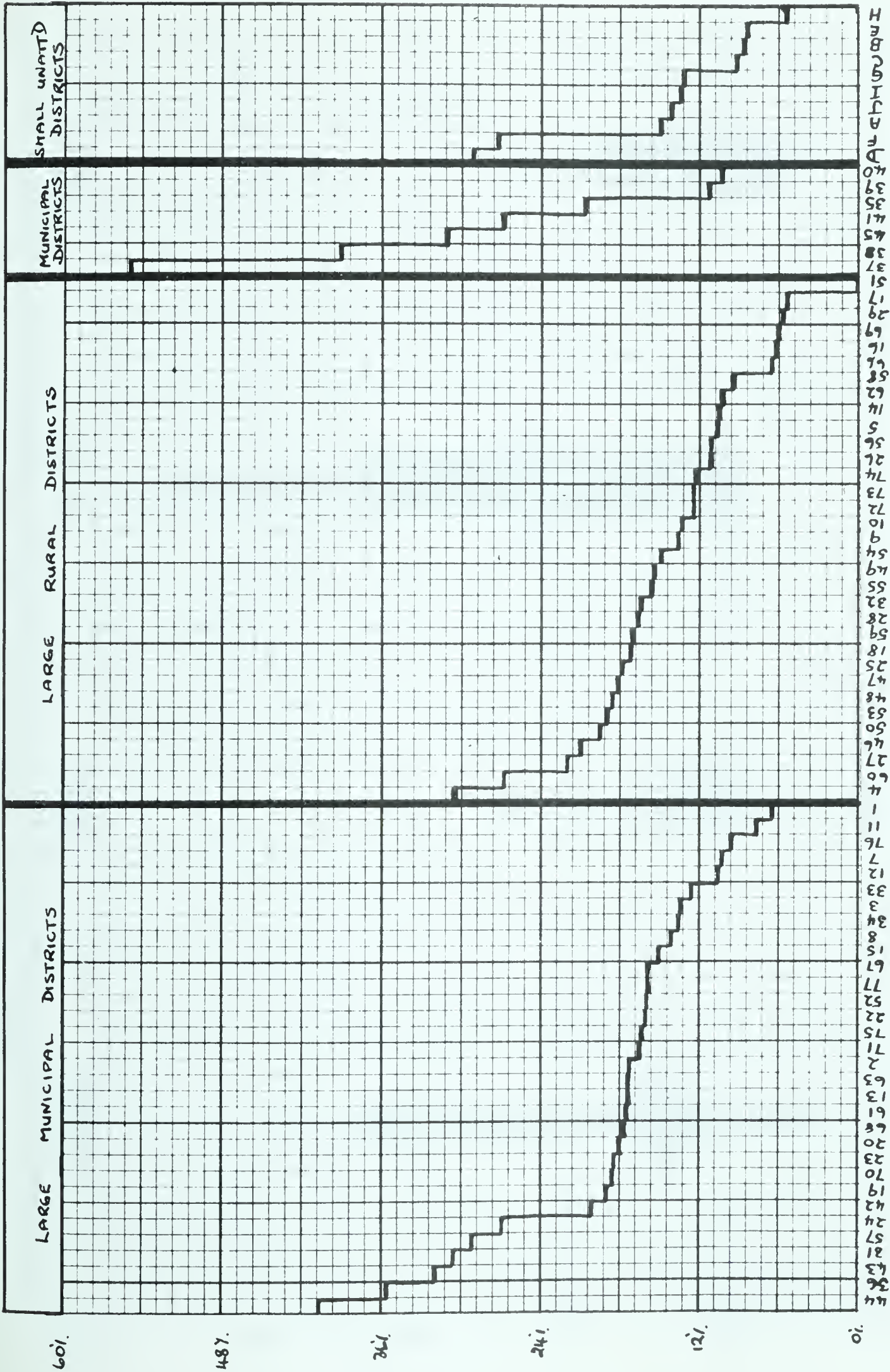


Figure 13. Annual growth rate of total expenditures per pupil from 1955/6 to 1961/2 in school districts.

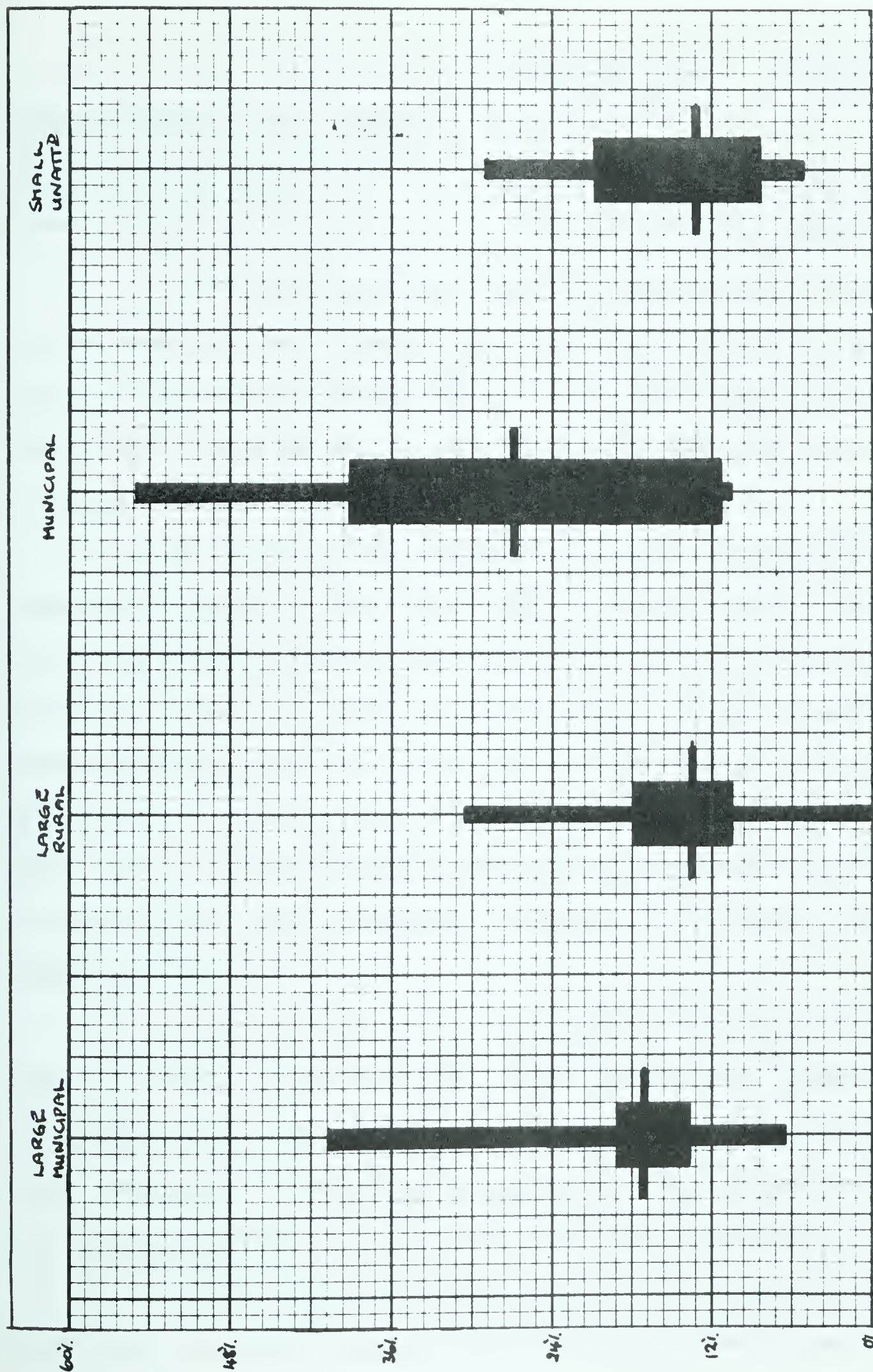


Figure 14. Summary of annual growth rate of total expenditures per pupil from 1955/6 to 1961/2 by classes of districts.

	Large Municipal Districts	Large Rural Districts
Range on annual growth rates of pupil population of the ten dis- tricts ranked highest on annual growth rates of total expenditure per pupil	1st to 28th (7 in highest 10 in districts)	1st to 23rd (6 in highest 10 in districts)

In the Municipal Districts, there was perfect correspondence between ranks on growth rates of pupil population and ranks on growth rates of total expenditures per pupil. In the Unattached Small Rural School Districts no obvious or apparent relation was found between the two growth rates.

It appears to be a possibility that this evidence might be reasonably accounted for by the following hypothesis: school districts which have an established tradition of services and facilities may maintain this standard as a primary aim even when pupil populations are expanding rapidly, and thus a high annual growth rate of total expenditures per pupil will reflect a high annual growth rate of pupil population. Other districts which have not established such a tradition may tend to fix costs as the primary objective and adjust services within a fixed financial framework.

This hypothesis tends to be supported in the Large Municipal class of districts by the fact that, of the ten districts ranked highest on growth rates of total expenditures per pupil, seven were found in the first ten ranks on growth of pupil population; and of these seven districts, six were found in the highest ten ranks on enrolments of pupils.

No such correspondence was found in the Large Rural class of districts. Of the ten districts ranked highest on growth rates of total

expenditures per pupil, six were found in the first ten ranks on growth rates of pupil population; and of these six districts, but three were found in the highest ten ranks on enrolments of pupils.

This tends to suggest that if certain districts attempt to maintain certain standards of services in spite of high growth rates of pupil populations, this tendency is most strongly exhibited in the Municipal Districts, somewhat less strongly in the Large Municipal Districts, and least strongly in the Large Rural Districts.

It did not appear, in general, that a certain growth in pupil population was accompanied by a related growth in total expenditures per pupil. In Table V, Districts 10 and 66 each have a growth rate of pupil population of 3.4 per cent annually, yet the growth rates in total expenditures per pupil were 13.4 per cent and 6.7 per cent respectively. District 51 in Table V had a growth rate of pupil enrolment of .3 per cent annually and had no annual growth rate of total expenditures per pupil; while District 17, with a lower growth rate of pupil population (.2 per cent annually) had a growth rate of total expenditures per pupil of 5.6 per cent annually.

V. THE LOCAL CONTRIBUTION TO EDUCATIONAL EXPENDITURES PER PUPIL IN SCHOOL DISTRICTS

The local contributions to the total revenues in the school districts essentially represent two components; the levy of twelve mills on one hundred per cent of the assessed values of land and seventy-five per cent of the assessed values of improvements, and that portion of the capital expenses not paid as the Capital Grant under the provisions noted

on page 4 supra. The former component appears to be fixed by the assessable wealth of the district, while the latter component appears free to fluctuate according to the standards of the educational facilities obtaining in the districts. Hence it appeared reasonable, if these standards did fluctuate, that the local contribution to educational costs in the districts would not be precisely related to the assessable values of local taxable property.

The data

The local contributions to educational revenues varied in 1961/2 from a high of \$431 to a low of \$9 per pupil. The ranges in these contributions for each of the four classes of school districts were as follows, from Table IX and Figures 15 and 16.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 257	\$ 431	\$ 258	\$ 290
Low	96	90	117	9
Median	147	143	191	77

The data related to the hypothesis

There were no entire ranges which were distinctive of any of the four classes of school districts; though that portion of the range above \$290 was unique to the Large Rural School Districts, there being seven such cases in that range; and that portion of the range below \$90 was unique to the Unattached Small Rural School Districts, there again being seven such cases in that range. The Large Rural District class had the largest range, although the median was almost identical with that of the Large

TABLE IX

LOCAL CONTRIBUTION TO EDUCATIONAL EXPENDITURES, PER PUPIL IN
SCHOOL DISTRICTS IN 1961/62 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
District			District			District		
Rank	No.	\$ ^b	Rank	No.	\$	Rank	No.	\$
1	52	257	1	29	431	1	39	258
2	11	246	2	48	415	2	45	228
3	68	219	3	49	373	3	40	220
4	70	215	4	47	331	4	37	191
5	76	206	5	46	324	5	41	179
6	43	191	6	74	321	6	38	159
7	61	174	7	66	307	7	35	117
8	44	167	8	9	270			
9	7	167	9	72	251			
10	24	166	10	60	234			
11	3	165	11	51	220			
12	23	163	12	26	203			
13	75	162	13	73	194			
14	8	161	14	69	182			
15	67	156	15	62	162			
16	63	151	16	58	160			
17	57	142	17	32	143			
18	1	142	18	17	141			
19	31	142	19	5	140			
20	15	141	20	25	139			
21	36	137	21	14	129			
22	13	131	22	59	128			
23	19	123	23	28	125			
24	77	122	24	4	116			
25	71	121	25	50	113			
26	22	121	26	27	110			
27	12	121	27	10	107			
28	34	121	28	53	105			
29	42	119	29	54	100			
30	33	113	30	16	99			
31	2	113	31	55	96			
32	20	96	32	56	95			
			33	18	90			
						Unattached Small Rural		
						1	I	290
						2	G	243
						3	A	222
						4	B	84
						5	J	81
						6	D	72
						7	C	53
						8	F	46
						9	E	22
						10	H	9

^aSource: Annual Report, 1961/2, op. cit., pp.Z.22-3, Z.30-32.

^bRounded off to nearest dollar.

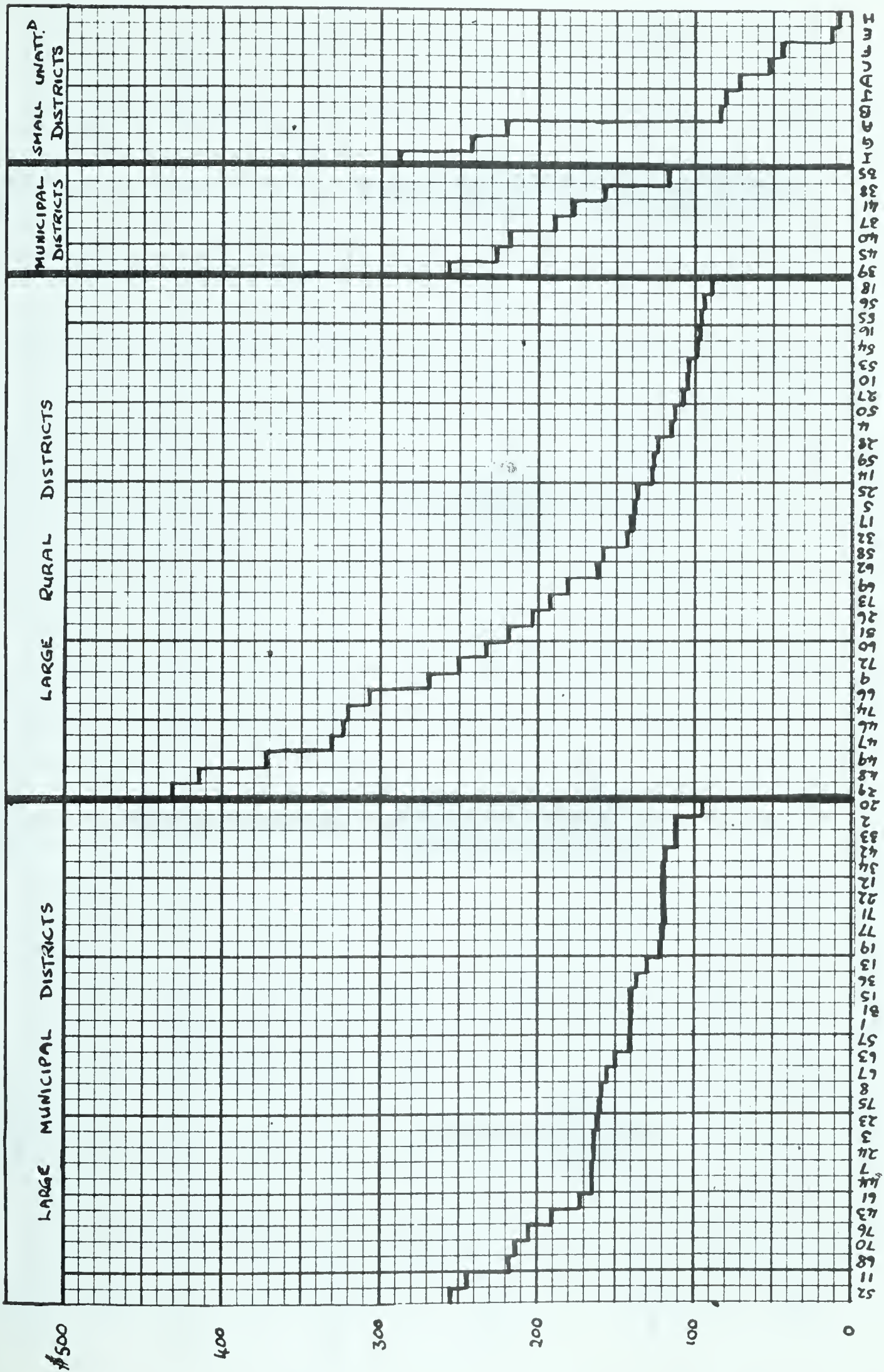


Figure 15. Local contribution to educational expenditures per pupil in school districts 1961/2.

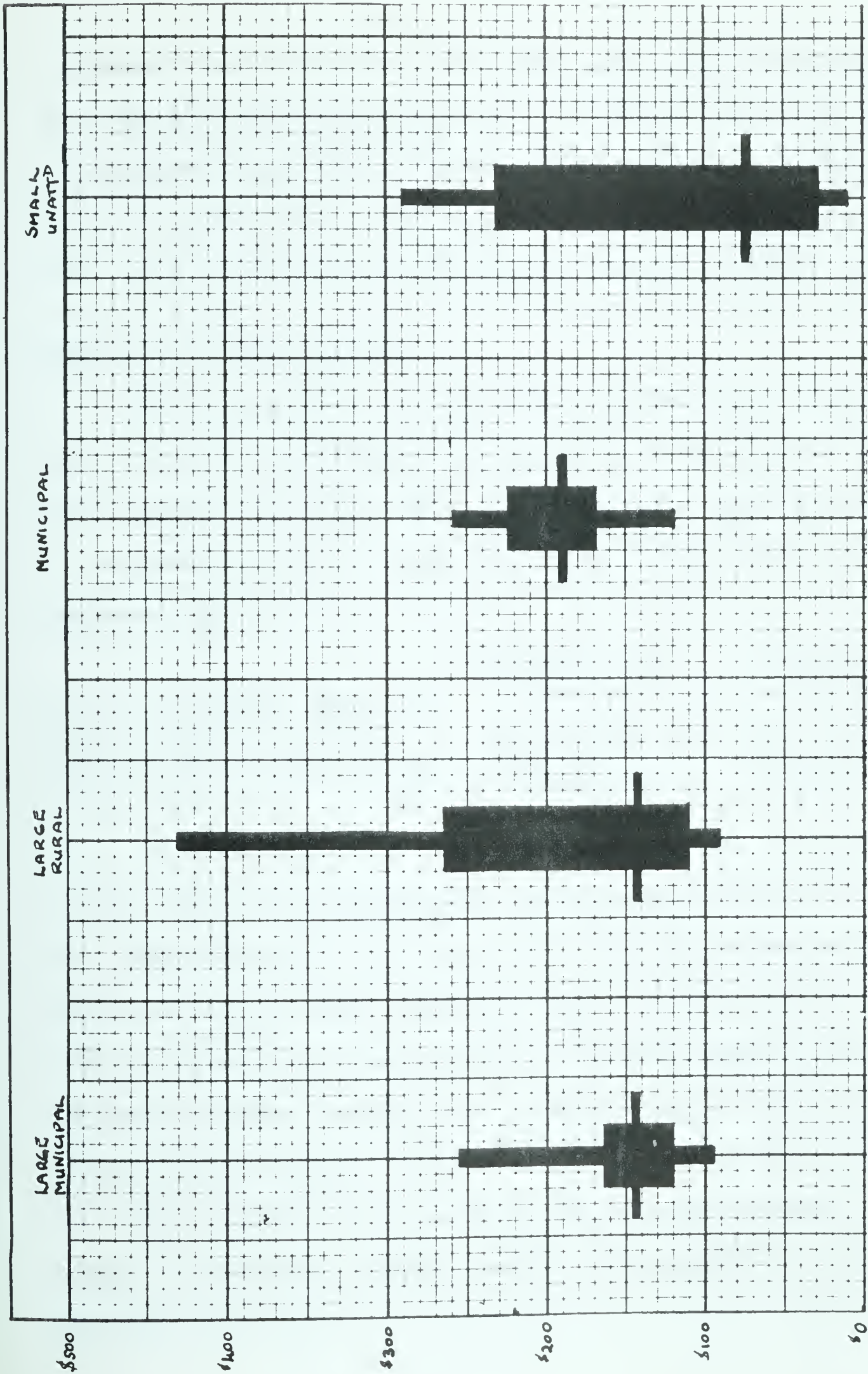


Figure 16. Summary of local contribution to educational expenditures per pupil in school districts 1961/2 by classes of districts.

Municipal class of districts. The upper limit of the range of the Municipal Districts was substantially the same as that of the Large Municipal Districts, though the lower limit was some forty-four dollars higher. The Municipal Districts had the highest median of any of the four classes of districts, but exhibited a relatively small range.

Relations to other variables

It was considered reasonable that the local contributions per pupil to the total revenues of the school districts might be related to the assessment values per pupil, and to the total expenditures per pupil in the school districts. Comparisons were therefore made to test these possibilities.

	Large Municipal Districts	Large Rural Districts
Range on assessment values per pupil of the ten districts ranked highest on local contri- butions to educational revenues	1st to 16th (9 in the highest 10)	1st to 11th (9 in the highest 10)

From this comparison it was concluded that the local contributions to total educational revenues were rather closely related to the assessment values per pupil in the school districts, and rather more closely related to the assessment values per pupil in the Large Rural Districts than in the Large Municipal Districts. It also suggests, that as far as the comparison went, local efforts to provide additional services were rather uniformly graded in accordance with the assessment values per pupil.

The following table represents the relations between local contributions to educational revenues and the total expenditures per pupil on educational facilities.

	Large Municipal Districts	Large Rural Districts
Range on total expenditures per pupil of the ten highest ranked districts on local contributions to educational revenues	4th to 30th	1st to 32nd

This indicated that the controlling factor in total educational expenditures per pupil was not the local contribution to total educational revenues.

VI. THE PROVINCIAL GRANTS AS A PERCENTAGE OF THE TOTAL REVENUES IN THE SCHOOL DISTRICTS IN 1961/2

The provincial grants, which are the second major contributions to the total revenues of the school districts as the local contributions were the first, comprise two elements; the deficiencies between the twelve mill levy on assessable property and the actual authorized operating costs, and the deficiencies between the approved capital expenditures and the sliding scale local levy as noted on pages 4 and 5 supra. Since the capital expenditures and the operating expenses appear free to fluctuate according to the standards of the educational facilities obtaining in the districts, it appeared reasonable to suppose that the provincial grants expressed as a percentage of the total educational revenues would not be closely related to the values of assessable property in the school districts.

The data

The proportion which the provincial grants bore to the total revenues of the school districts in 1961/2 varied from a high of 86 per cent to a low of 5 per cent. The ranges in each of the four classes of

school districts were as follows, from Table X and Figures 17 and 18.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	70%	74%	66%	86%
Low	20%	5%	36%	29%
Median	56%	58%	43%	62%

The data related to the hypothesis

There were no entire ranges of that proportion which the provincial grants bore to the total educational revenues of the school districts which were distinctive of any of the four classes of school districts, though that portion of the range above 74 per cent was unique to the Unattached Small Rural Districts, there being five such cases in that range; and that portion of the range below 20 per cent was unique to the Large Rural Districts, there being four such cases in that range. In general, from Figure 18, which illustrates the semi-interquartile ranges, the Municipal and Large Municipal Districts exhibit the greatest consistency, though the median of the latter class is considerably higher than that of the former class. Both the Large Rural and Unattached Small Rural classes of districts exhibit wide ranges and have medians higher than those of the other two classes.

Relations to other variables

Comparisons were made to test the relations between the proportions which the provincial grant bore to the total educational revenues and the local contributions to total educational revenues; and to the total expenditures per pupil in the school districts.

TABLE X

PROVINCIAL GRANTS AS A PERCENTAGE OF TOTAL REVENUE IN THE
SCHOOL DISTRICTS IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	% ^b	Rank	District No.	%	Rank	District No.	%
1	20	70	1	10	74	1	35	66
2	19	66	2	54	72	2	38	51
3	8	66	3	55	72	3	41	48
4	22	63	4	56	71	4	37	43
5	34	62	5	18	71	5	45	40
6	42	62	6	16	69	6	39	39
7	71	62	7	27	67	7	40	36
8	13	62	8	53	67			
9	1	61	9	28	66			
10	2	61	10	4	66			
11	12	60	11	17	62	Unattached Small Rural		
12	43	59	12	25	61			
13	67	59	13	59	61	1	E	86
14	77	59	14	50	61	2	J	82
15	23	56	15	5	60	3	B	81
16	57	56	16	14	59	4	C	77
17	75	55	17	58	58	5	D	76
18	15	53	18	32	55	6	F	48
19	7	53	19	62	54	7	I	44
20	24	53	20	69	52	8	G	43
21	63	52	21	26	46	9	A	43
22	33	51	22	51	45	10	H	29
23	36	51	23	73	43			
24	44	50	24	60	40			
25	3	50	25	46	33			
26	31	48	26	9	31			
27	61	47	27	72	25			
28	68	39	28	47	23			
29	76	38	29	49	21			
30	11	33	30	66	17			
31	70	23	31	74	12			
32	52	20	32	48	12			
			33	29	5			

^aSource: Annual Report, 1961/2, op. cit., pp. Z. 30-2.

^bRounded off to nearest whole number.

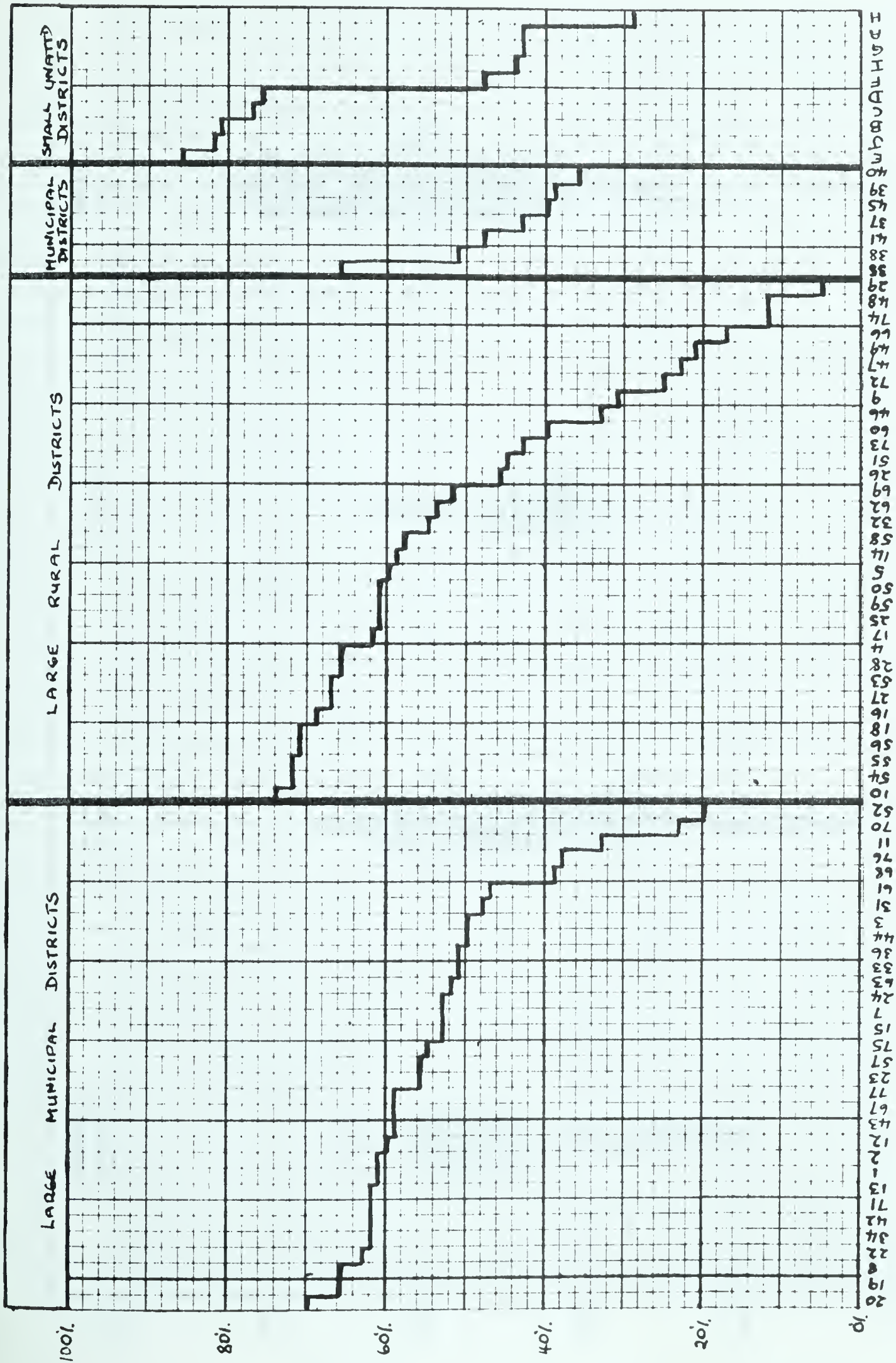


Figure I7. The provincial grant as a percentage of the total revenue in school districts 1961/2.

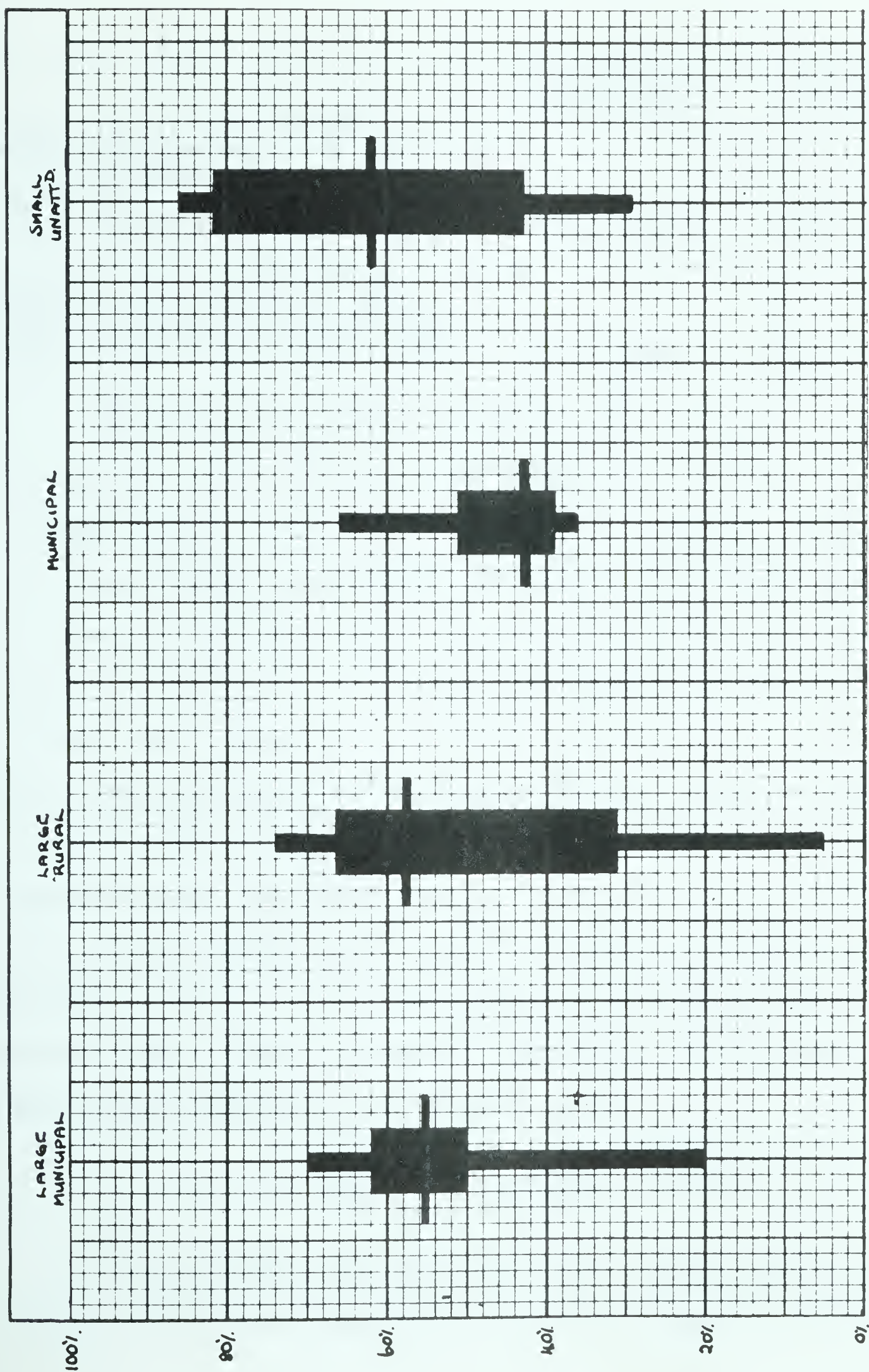


Figure 18. Summary of provincial grant as a percentage of total revenue in school districts 1961/2 by classes of districts.

	Large Municipal Districts	Large Rural Districts
Range on local contributions to educational revenues of the ten districts ranked highest on proportion of provincial grants to total educational revenues	14th to 32nd	23rd to 33rd
Range on total expenditures per pupil of the ten districts ranked highest on proportion of provincial grants to total educational revenues	1st to 28th	13th to 33rd

These comparisons tended to indicate that

- a. There is a rather strong relationship between high rank on the proportion which the provincial grants bore to the total educational revenues and low rank on local contributions to total educational revenues in the Large Rural School Districts, and that this relationship was much weaker in the Large Municipal Districts than in the Large Rural Districts.
- b. The total expenditures in the Large Rural School Districts appeared to be but slightly related to the proportion of the district's revenues drawn from the provincial grants.

It then appeared fair to state that rank on total expenditures per pupil in the districts did not seem to be strongly related to either the local contributions to educational revenues or to the proportion of total revenues supplied by the provincial grants.

VII. THE DEBT CHARGES PER PUPIL IN SCHOOL DISTRICTS IN 1961/2

It was assumed in the discussion of this variable that the debt charges per pupil were indicative of the debts per pupil in the school

districts, though no evidence is adduced in support of this assumption, and it may well be the case that certain districts pay off their indebtedness at a lower or higher rate of interest than do others and over a shorter or longer period of time.

The data

The debt charges per pupil in school districts in 1961/2 varied from a high of \$89 to a low of zero dollars. The ranges for each of the four classes of school districts were as follows, from Table XI and Figures 19 and 20.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 67	\$86	\$ 62	\$ 89
Low	15	1	36	0
Median	42	51	58	0

The data related to the hypothesis

There were no entire ranges of debt charges per pupil which were distinctive of any of the four classes of school districts, though that portion of the range above \$86 was unique to the Unattached Small Rural Districts, there being one such case in that range; and that portion of the range below \$1 was also unique to the Unattached Small Rural Districts, there being six such cases in that range.

The great range in debt charges noted in the Unattached Small Rural Districts is misleading; there was but one district in this class which had debt charges of over two dollars per pupil. The Municipal Districts had the smallest range and the highest median debt charges per

TABLE XI
DEBT CHARGES PER PUPIL IN SCHOOL DISTRICTS
IN 1961/62 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	\$ ^b	Rank	District No.	\$	Rank	District No.	\$
1	1	67	1	48	86	1	37	62
2	24	59	2	49	81	2	45	60
3	52	58	3	4	79	3	39	59
4	44	54	4	25	73	4	38	58
5	57	51	5	74	71	5	41	47
6	67	50	6	27	69	6	40	37
7	75	50	7	47	68	7	35	36
8	7	50	8	50	65			
9	68	49	9	53	63			
10	19	49	10	60	60			
11	43	49	11	54	59			
12	42	46	12	46	59			
13	71	44	13	28	58			
14	61	43	14	29	56			
15	20	42	15	18	53			
16	31	42	16	26	51			
17	36	42	17	55	51			
18	34	38	18	59	51			
19	23	35	19	10	51			
20	76	34	20	73	49			
21	15	34	21	72	47			
22	22	34	22	62	47			
23	70	32	23	56	47			
24	2	32	24	32	44			
25	11	32	25	69	41			
26	13	32	26	58	37			
27	63	30	27	9	37			
28	3	30	28	14	33			
29	77	29	29	16	30			
30	33	26	30	17	30			
31	12	21	31	66	30			
32	8	15	32	5	23			
			33	51	1			

Unattached Small Rural		
Rank	District No.	\$
1	I	89
2	D	2
3	C	1
4	B	1
5	A	0
6	E	0
7	F	0
8	G	0
9	H	0
10	J	0

^aSource: Annual Report, 1961/2, op. cit., pp. 27-29.

^bRounded off to nearest whole number.

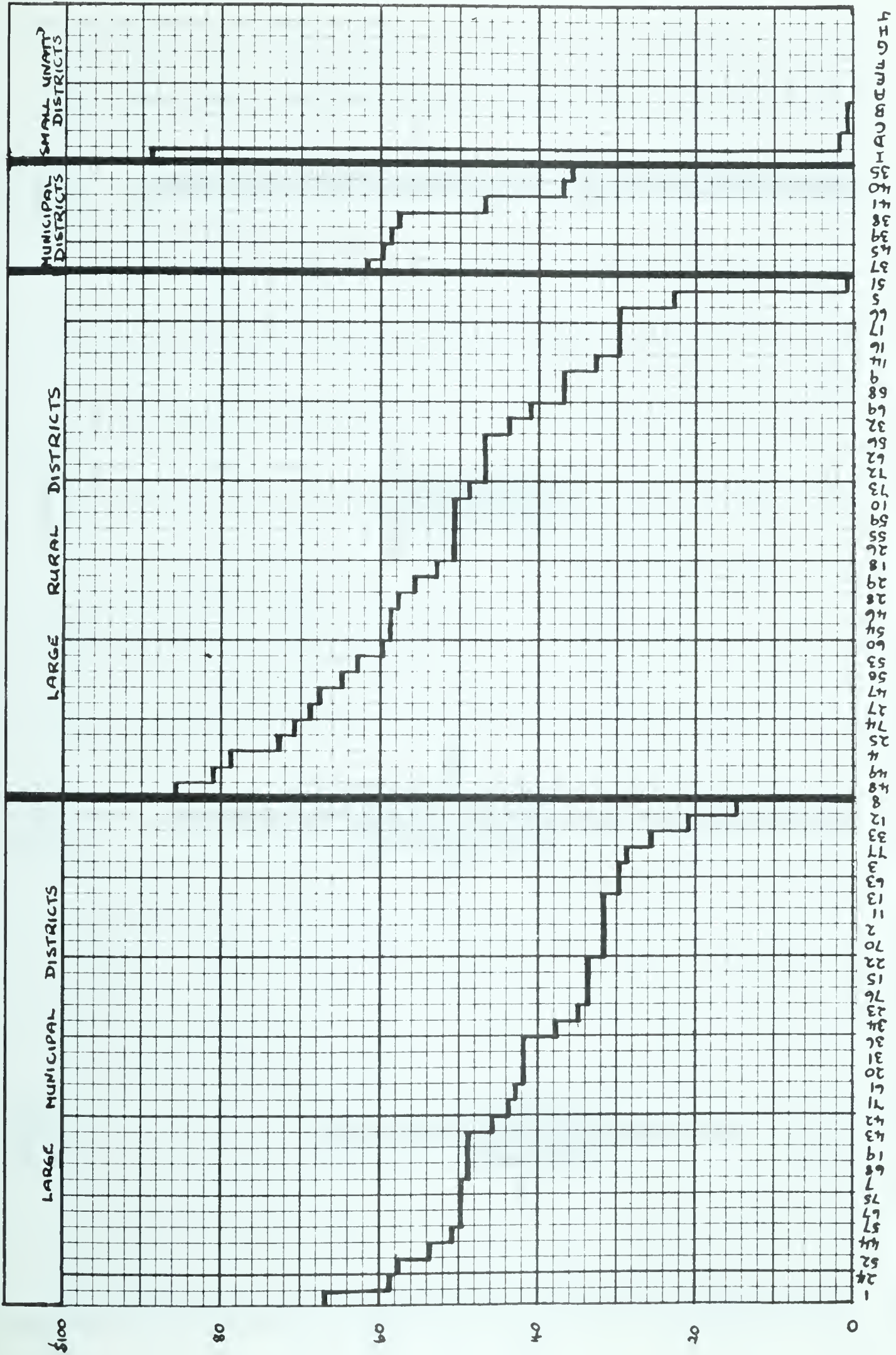


Figure I9. Debt charges per pupil in school districts 1961/2.

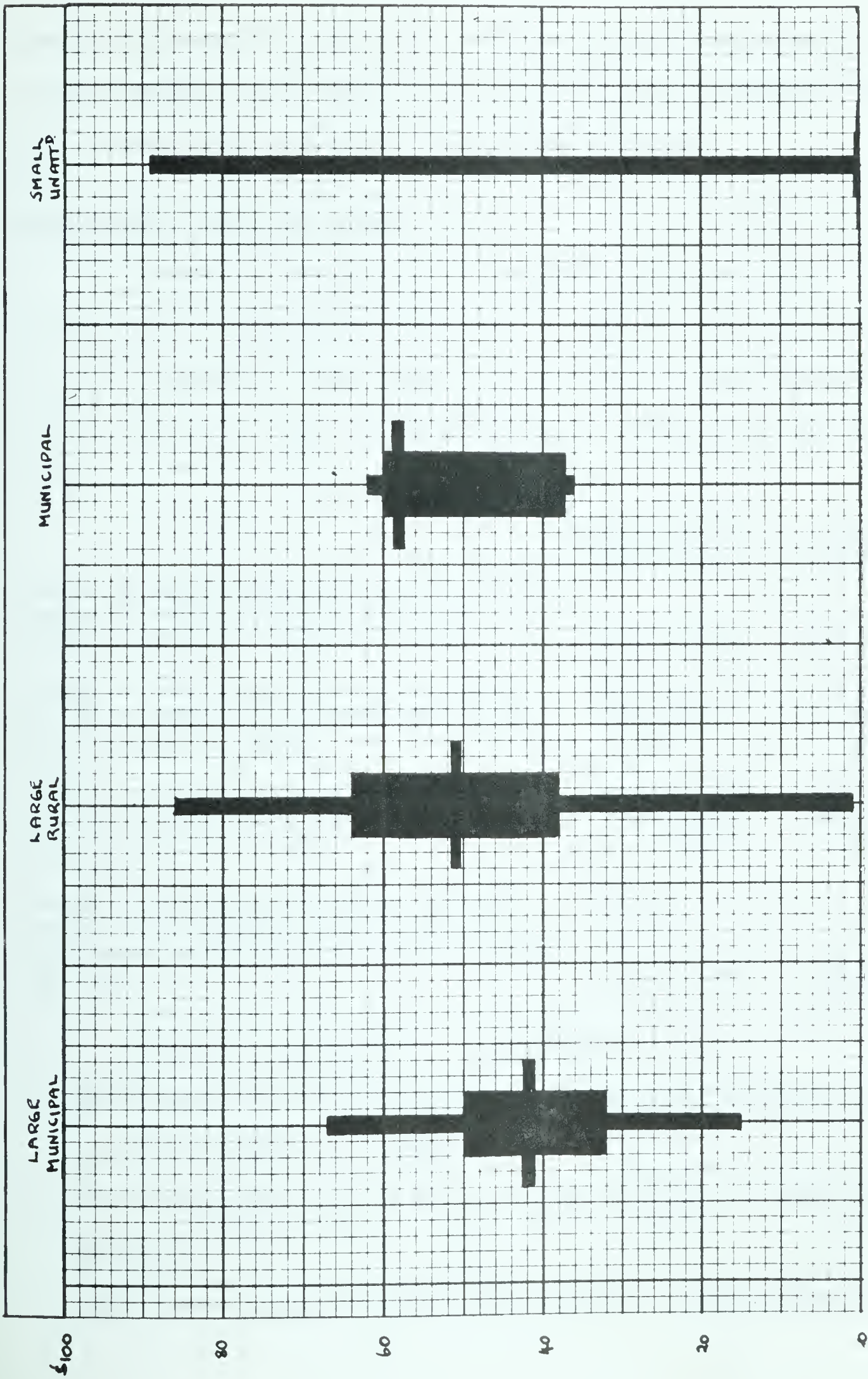


Figure 20. Summary of debt charges per pupil in school districts 1961/2 by classes of districts.

pupil; the Large Rural Districts had the greatest true range and the next highest median; the Large Municipal Districts had a moderate range and a median lower than that of the Large Rural Districts.

Relations to other variables

It appeared reasonable that the debt charges per pupil in the school districts might be related to the growth in pupil enrolments, to the total expenditures per pupil, to the growth in total expenditures per pupil, and to the local revenues per pupil. Comparisons were therefore made.

	Large Municipal Districts	Large Rural Districts
Range on annual growth of pupil enrolments of the ten districts ranked highest on debt charges per pupil	2nd to 31st	1st to 24th
Range on total expenditures per pupil of the ten districts ranked highest on debt charges per pupil	2nd to 22nd (7 in the highest 10)	2nd to 24th (6 in the highest 10)
Range on growth of total expenditures of the ten districts ranked highest on debt charges per pupil	1st to 32nd (The entire range)	1st to 21st (8 in the highest 10)
Range on local contributions to total educational expenditures of the ten districts ranked highest on debt charges per pupil	1st to 23rd	2nd to 28th

From these comparisons it appeared that

- a. Debt charges per pupil were not related to annual growths of pupil enrolments. (Ancillary Question Number 1.)
- b. Debt charges per pupil were only slightly related to total expenditures per pupil.
- c. Debt charges per pupil were rather strongly related in the Large Rural

Districts to the growth rates in total expenditures per pupil.

d. Debt charges per pupil were not related to the local contributions to total educational revenues in the school districts.

In an additional test, it was found that high debt charges per pupil were as likely to be associated with low assessment values per pupil as with high assessment values, and thus it was concluded that the wealth of the districts in assessable values of property per pupil was not a factor in the debt charges per pupil.

VIII. THE AVERAGE TEACHERS' SALARIES IN SCHOOL DISTRICTS IN 1961/2

The salaries of teachers was considered in terms of the average salaries, that is, the expenditures under the heading of Teachers' Salaries divided by the number of teachers, and as expenditures per pupil, so that some comparison might be made to test the effect of small enrolments.

The data

The average teachers' salaries in the school districts in 1961/2 varied from a high of \$10,500 to a low of \$4,530 annually. The ranges in annual average salaries in each of the four classes of school districts were as follows, from Table XII and Figures 21 and 22.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 6260	\$ 6180	\$ 6370	\$ 10,500
Low	4540	4530	5430	5,000
Median	5495	5360	6040	6,520

TABLE XII

AVERAGE TEACHERS' SALARIES IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	Salary \$ ^b	Rank	District No.	Salary \$	Rank	District No.	Salary \$
1	61	6260	1	9	6180	1	45	6370
2	3	6040	2	5	6010	2	40	6290
3	22	5960	3	69	5910	3	39	6200
4	11	5860	4	14	5860	4	35	6040
5	7	5860	5	17	5840	5	41	5800
6	67	5840	6	47	5770	6	38	5560
7	23	5800	7	48	5730	7	37	5430
8	75	5750	8	73	5640			
9	12	5730	9	51	5630			
10	44	5720	10	53	5630			
11	71	5700	11	54	5630			
12	63	5600	12	74	5610			
13	24	5540	13	46	5560			
14	77	5520	14	16	5520			
15	34	5510	15	49	5500			
16	15	5500	16	32	5440			
17	76	5490	17	66	5360			
18	68	5480	18	60	5350			
19	43	5460	19	62	5260			
20	33	5410	20	72	5140			
21	42	5400	21	10	5110			
22	19	5350	22	59	5040			
23	13	5350	23	28	5010			
24	20	5300	24	56	4990			
25	70	5280	25	55	4970			
26	1	5220	26	29	4960			
27	2	5150	27	25	4930			
28	52	5030	28	50	4920			
29	36	5020	29	58	4900			
30	57	4990	30	4	4790			
31	8	4660	31	26	4680			
32	31	4540	32	18	4670			
			33	27	4530			

Unattached Small Rural		
Rank	District No.	Salary \$
1	F	10500
2	J	7750
3	I	7860
4	B	7750
5	G	6540
6	A	6500
7	D	5320
8	E	5210
9	H	5200
10	C	5000

^aSource: Annual Report, 1961/2, op. cit., pp. Z. 27-9.

^bRounded off to nearest ten dollars.

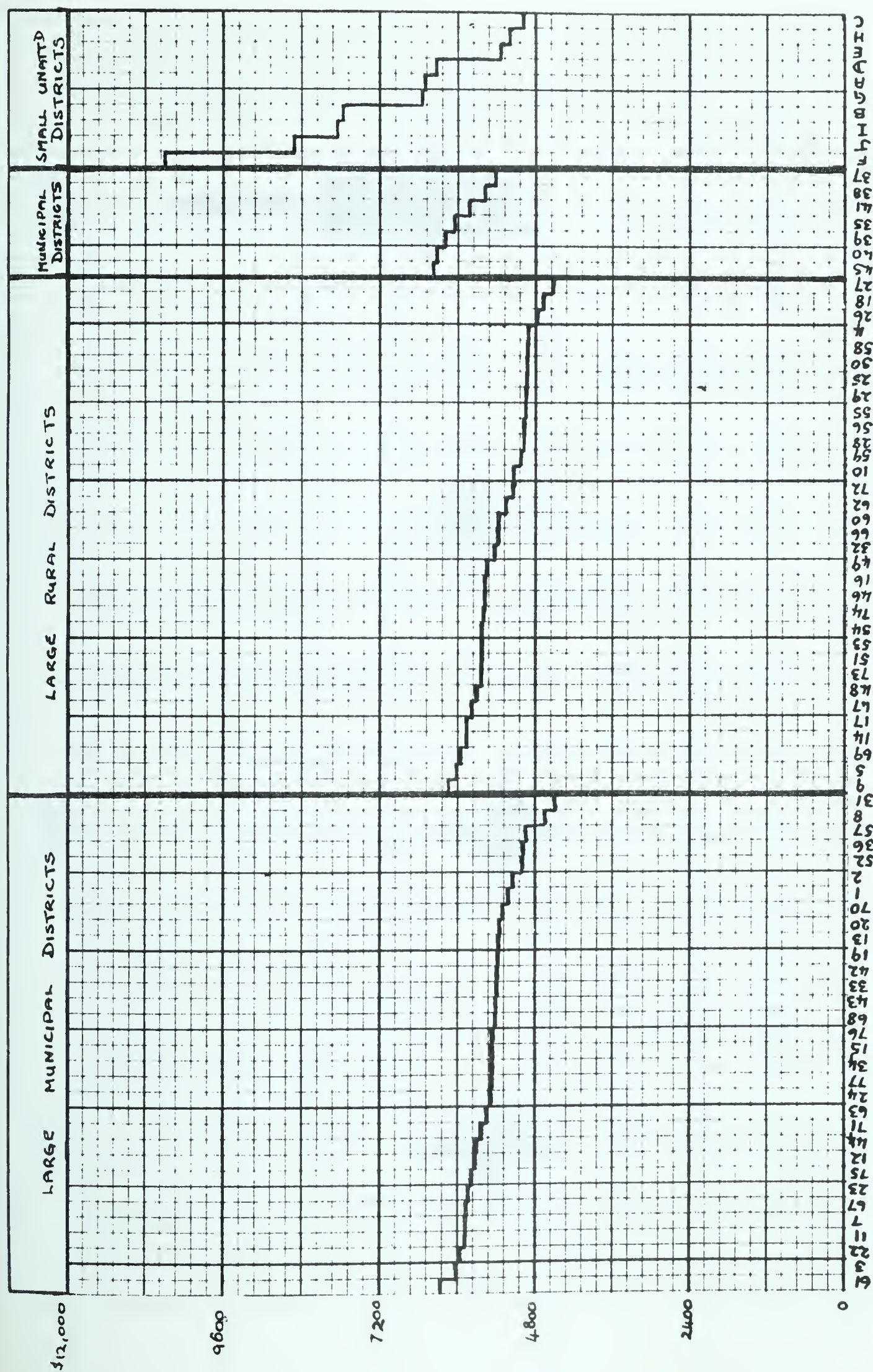


Figure 2I. Average teachers' salaries in school districts 1961/2.

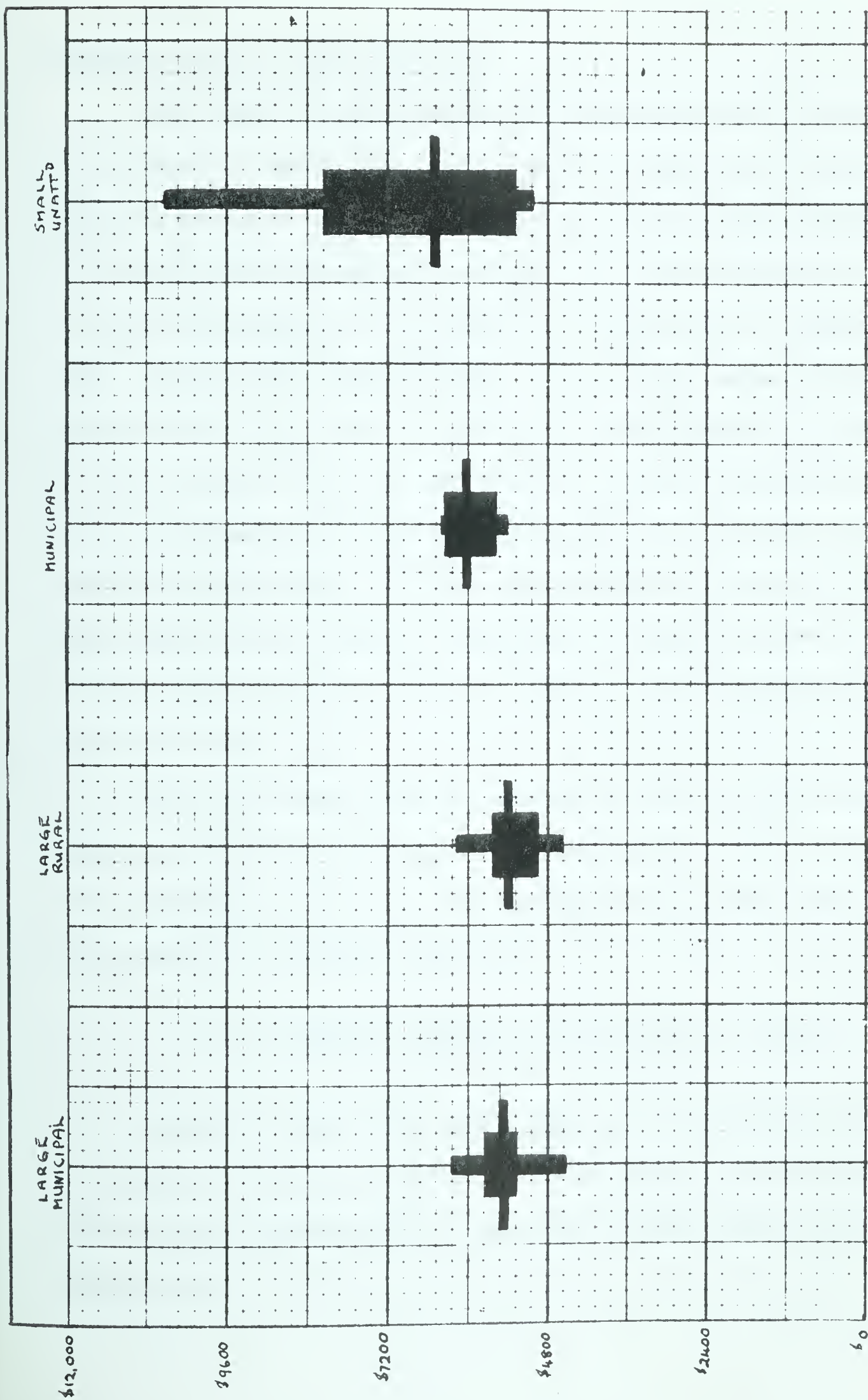


Figure 22. Summary of average teachers' salaries in school districts 1961/2, by classes of districts.

The data related to the hypothesis

There were no entire ranges which were distinctive of any of the four classes of school districts; though that portion of the range above \$6370 was unique to the Unattached Small Rural Districts, there being six such cases in that range; and that portion of the range below \$4540 was unique to the Large Rural Districts, there being one such case in that range. It was noted that the upper limits of the ranges of the Municipal, Large Municipal and Large Rural Districts were substantially the same, but that the lower limit of the range of the Municipal Districts approximated to the medians of the Large Municipal and Large Rural Districts, probably indicative not so much of higher salary schedules as of a more experienced and more highly trained body of teaching staff in the Municipal Districts than is found in some of the Large Municipal and Large Rural Districts.

The high average salaries reported for some of the Unattached Small Rural Districts was due, in the experience of this writer, to high salary schedules, relatively long experience and rather high teaching qualifications of teachers employed.

IX. TEACHERS' SALARIES PER PUPIL IN THE SCHOOL
DISTRICTS IN 1961/2

Teachers' salaries per pupil make up one of the major expenditures of the school districts, and hence the variations in this factor reasonably appear to have considerable influence in variations of total educational expenditures.

The data

The values of this expenditure varied in the school districts in 1961/2 from a high of \$656 to a low of \$142. The ranges in each of the four classes of school districts were as follows, from Table XIII and Figures 23 and 24.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 244	\$ 267	\$ 233	\$ 656
Low	142	163	198	171
Median	211	215	225	337

The data related to the hypothesis

There were no entire ranges which were distinctive of any of the four classes of school districts; though that portion of the range above \$267 was unique to the Unattached Small Rural Districts, there being eight such cases in that range; and that portion of the range below \$163 was unique to the Large Municipal Districts, there being two such cases in that range.

The generally high levels of teachers' salaries per pupil obtaining in the Unattached Small Rural Districts are probably a consequence of small enrolments (The five districts in this class which have the highest ranks on teachers' salaries per pupil have enrolments below forty-five pupils) and high salary schedules. Differences between the other three classes of districts are small; the three medians differ by only fourteen dollars. Salaries in the Large Municipal Districts were lower on both the upper and lower limits by some twenty dollars than in the Large Rural Districts. A possible and reasonable explanation for

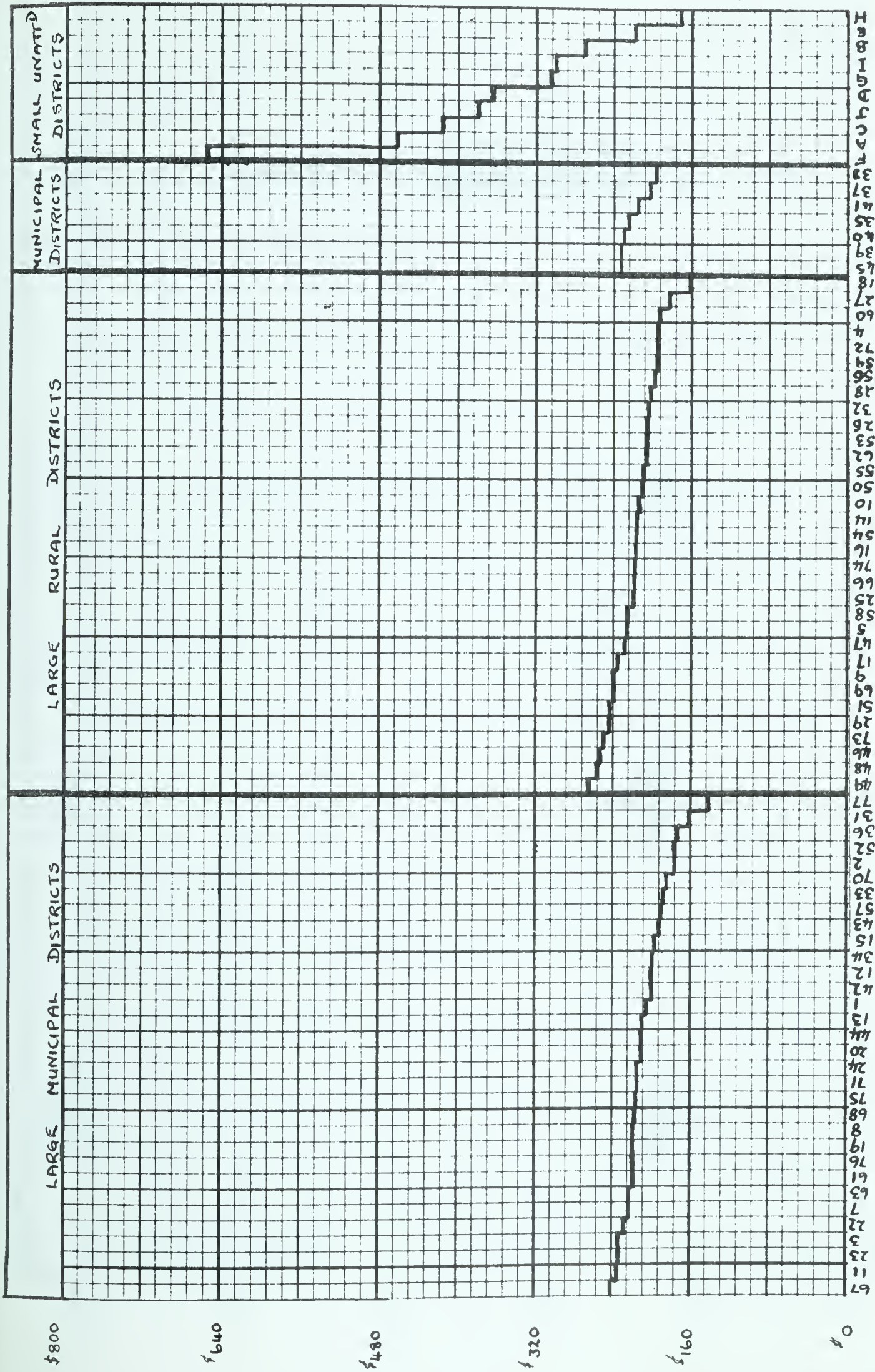


Figure 23. Teachers' salaries per pupil in school districts 1961/2.

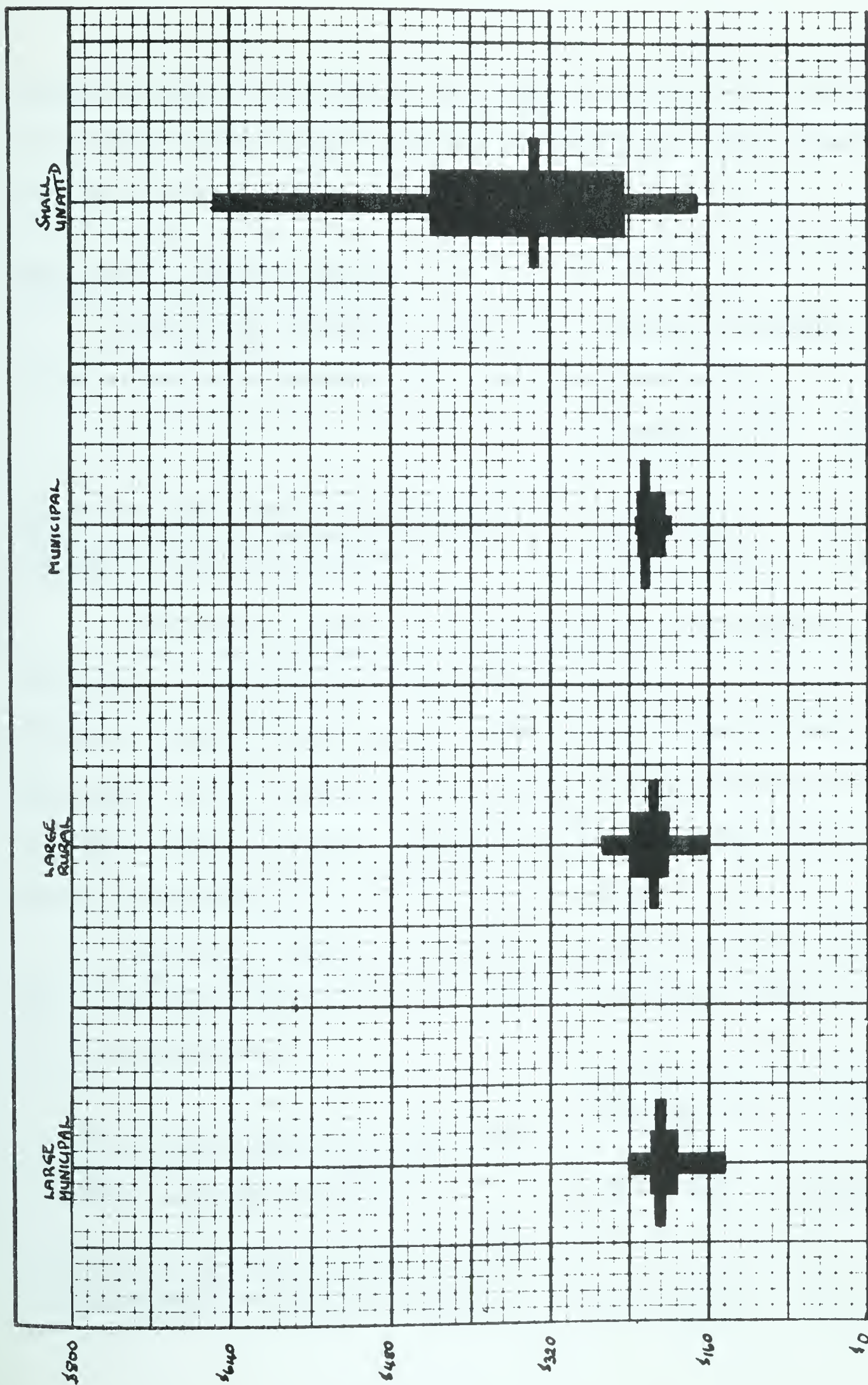


Figure 24. Summary of teachers' salaries per pupil in school districts 1961/2, by classes of districts.

these differences is that the Large Rural Districts may attract teachers by somewhat higher salaries, though no data were brought forward to support this viewpoint.

Relations to other variables

Comparisons were made to test the relationships between teachers' salaries per pupil and the total expenditures per pupil.

	Large Municipal Districts	Large Rural Districts
Range on total expenditures per pupil of the ten districts ranked highest on teachers' salaries per pupil	2nd to 20th (4 in the highest 10)	1st to 21st (7 in the highest 10)

There did not appear to be any relationship between the two variables in the Large Municipal Districts; that is, high total expenditures per pupil did not appear to be caused by high teachers' salaries per pupil. In the Large Rural Districts, it appeared that districts which had high rank on teachers' salaries per pupil had a moderate tendency to have high rank on total expenditures per pupil.

There was no apparent relationship between teachers' salaries per pupil and either debt charges per pupil or the annual growth rates in total expenditures.

	Large Municipal Districts	Large Rural Districts
Range of debt charges per pupil of the ten districts ranked highest on teachers' salaries per pupil	2nd to 30th	11th to 33rd
Range on annual growth rates in total expenditures of the ten districts ranked highest on teachers' salaries per pupil	8th to 31st	4th to 33rd

Relations to other variables

When average teachers' salaries were compared with teachers' salaries per pupil the following relationship was noted

	Large Municipal Districts	Large Rural Districts
Range on average teachers' salaries of the ten districts ranked highest on teachers' salaries per pupil	1st to 22nd (7 in the highest 10)	1st to 26th (7 in the highest 10)

It appeared that high rank on teachers' salaries per pupil tended to be associated with high average teachers' salaries, but not so closely as to deny that there were considerable variations in the ratios between the numbers of pupils per teacher in the school districts.

X. THE ADMINISTRATIVE EXPENDITURES PER PUPIL IN THE SCHOOL DISTRICTS IN 1961/2

The expenditures per pupil on administrative services did not represent large proportions of the total expenditures per pupil in the school districts, but this variable was considered to be important, since it represents the salaries of administrative staffs and office expenditures which may in some degree be associated with efficient direction of the district programme.

The data

The administration expenditures per pupil in the school districts in 1961/2 varied from a high of \$70.60 to a low of \$8.60 per pupil. The ranges for each of the four classes of school districts were as follows, from Table XIV and Figures 25 and 26.

TABLE XIV

THE ADMINISTRATION EXPENDITURES PER PUPIL IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	\$ ^b	Rank	District No.	\$	Rank	District No.	\$
1	76	20.10	1	51	67.20	1	39	25.10
2	13	19.40	2	50	33.00	2	35	14.80
3	8	19.20	3	73	31.00	3	45	14.20
4	19	19.10	4	49	30.70	4	40	13.30
5	68	17.40	5	55	29.00	5	37	12.60
6	67	17.10	6	26	28.20	6	38	11.70
7	1	16.90	7	56	26.30	7	41	9.90
8	20	14.90	8	48	26.20			
9	63	14.70	9	10	25.90			
10	31	13.90	10	17	25.80			
11	57	13.40	11	58	25.70			
12	52	13.40	12	25	25.70			
13	75	13.40	13	29	24.60			
14	11	12.30	14	54	23.60			
15	24	12.30	15	74	23.50			
16	44	11.80	16	46	22.30			
17	43	11.70	17	27	20.80			
18	61	11.40	18	16	19.30			
19	77	11.30	19	32	18.80			
20	12	11.30	20	53	18.70			
21	23	11.30	21	69	18.40			
22	3	11.30	22	47	18.30			
23	2	11.20	23	28	18.20			
24	71	11.00	24	66	18.20			
25	7	11.00	25	60	17.90			
26	34	9.80	26	4	16.10			
27	70	9.80	27	62	16.00			
28	22	9.70	28	14	14.90			
29	36	9.30	29	18	14.50			
30	33	9.10	30	5	14.30			
31	15	8.80	31	72	14.20			
32	42	8.60	32	9	13.80			
			33	59	13.00			

Unattached Small Rural		
Rank	District No.	\$
1	F	70.60
2	A	60.70
3	C	54.20
4	D	40.50
5	J	30.00
6	G	26.30
7	B	25.60
8	I	22.40
9	E	20.80
10	H	9.60

^aSource: Annual Report, 1961/62, op. cit., pp. Z.22-23, Z.27-9.

^bRounded off to nearest ten cents.

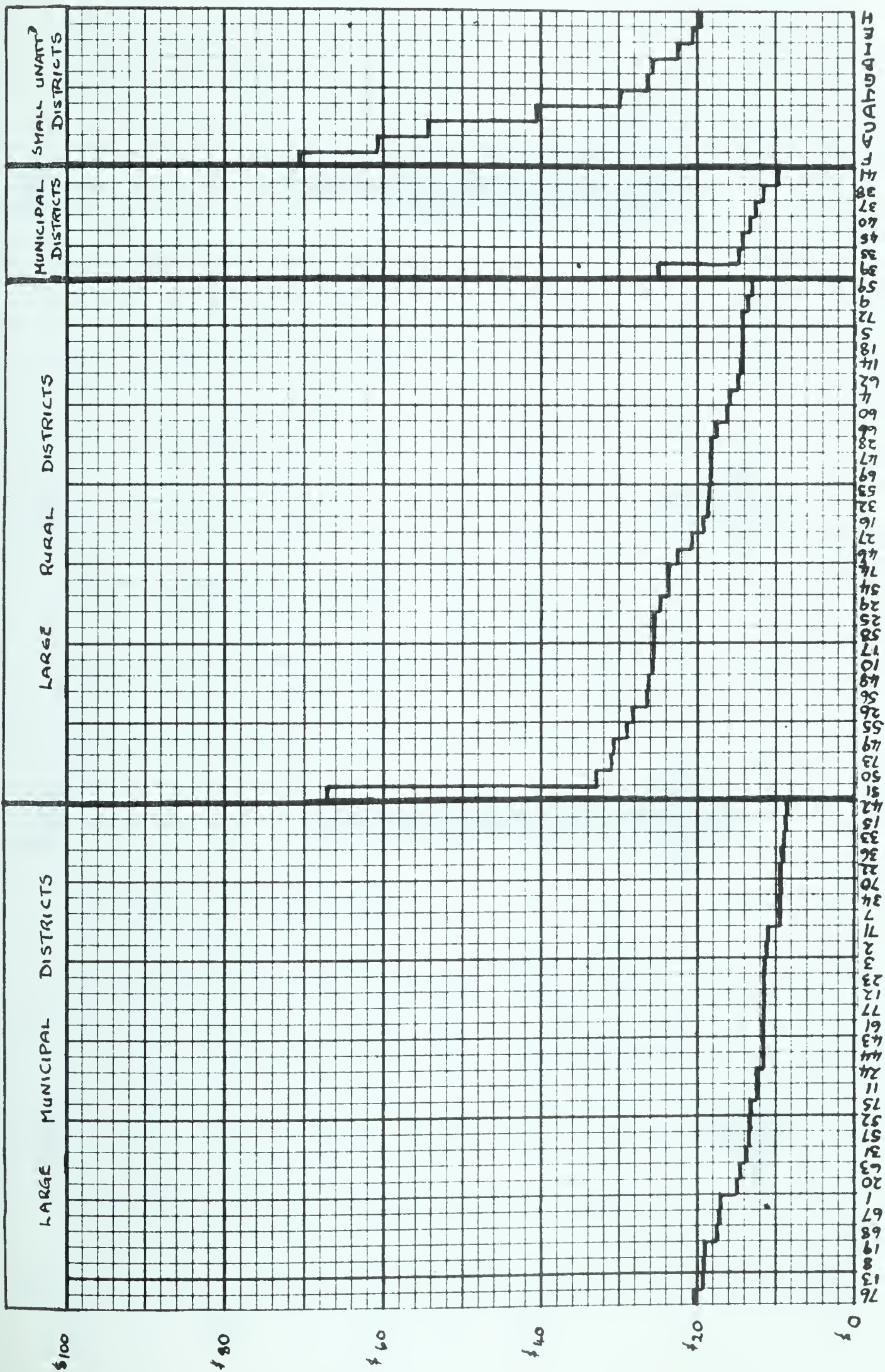


Figure 25. Administration expenditures per pupil in school districts 1961/2.

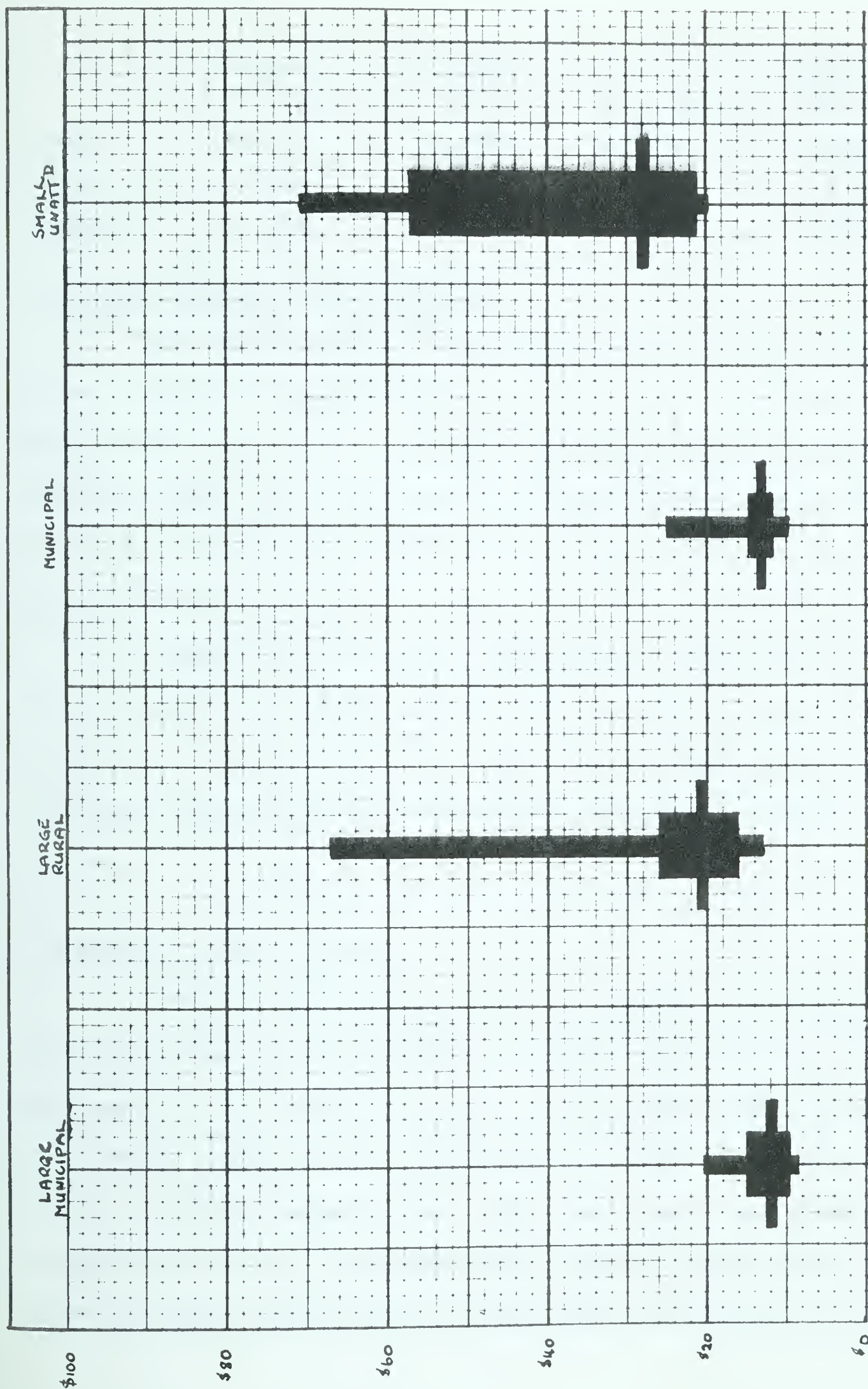


Figure 26. Summary of administration expenditures per pupil in school districts 1961/2 by classes of districts.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$20.10	\$67.20	\$25.10	\$70.60
Low	8.60	13.00	9.90	9.60
Median	11.75	20.80	13.30	28.65

The data related to the hypothesis

There were no entire ranges which were distinctive of any of the four classes of school districts; though that portion of the range above \$67.20 was unique to the Unattached Small Rural School Districts, there being one such case in that range; and that portion of the range below \$9.60 was unique to the Large Municipal School Districts, there being again one such case in that range.

In general, as indicated by the medians, administrative expenditures were highest in the Unattached Small Rural Districts, next high in the Large Rural Districts, which had a median above that of the Municipal Districts, and the median of the Large Municipal Districts was lowest of all.

Relations to other variables

It was considered reasonable that administration expenditures might be related to the enrolments of pupils and to the total expenditures per pupil, in the former case since the services of administration staff that may be required for a minimum number of pupils might well serve the needs of a greater number, and in the latter case it was possible that a district with high total expenditures per pupil might offer such additional services to pupils as might require a larger and more skilled

staff to operate these services. Comparisons were therefore made.

	Large Municipal Districts	Large Rural Districts
Range on enrolments of pupils of the ten districts ranked highest on administration expenditures per pupil	8th to 32nd	16th to 33rd
Range on total expenditures per pupil of the ten districts ranked highest on administration expenditures per pupil	1st to 29th (6 in the highest 10)	1st to 25th (7 in the highest 10)

There was a tendency for the districts ranked high on administration expenditures per pupil to have somewhat low rank on enrolments of pupils, and this tendency was more marked in the Large Rural Districts than in the Large Municipal Districts.

There was also a slight tendency for those districts with high administration expenditures to have high total expenditures per pupil, but this tendency is not so strong as to allow of any useful generalizations. The relationship between administration expenditures and the educational variables was discussed under the latter groupings.

XI. THE PLANT OPERATION EXPENDITURES PER PUPIL IN THE SCHOOL DISTRICTS IN 1961/2

The plant operation expenditures per pupil, with the teachers' salaries per pupil, constitute the two largest elements in the total per pupil expenditures. The variations in this expenditure might therefore be of importance in investigating the variations in the total per pupil expenditures.

The data

The plant operations expenditures per pupil varied in 1961/2 from

a high of \$232 to a low of \$40. The ranges for each of the four classes of school districts were as follows, from Table XV and Figures 27 and 28.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 70	\$ 111	\$ 74	\$ 232
Low	40	45	40	91
Median	54.50	74	54	124

The data related to the hypothesis

There were no ranges which were distinctive of any of the four classes of school districts, though that portion of the range above \$111 was unique to the Unattached Small Rural Districts, there being seven such cases; and that portion of the range below \$45 was unique to the Large Municipal Districts, there being two such cases in that range.

The Unattached Small Rural Districts had the greatest range and both the lower and upper limits were twice as great as those of any of the other three classes of districts. The Large Rural Districts' expenditures on this head were higher than those of the Large Municipal and Municipal Districts; the latter two classes of districts had plant operation expenditures in close accord.

Since the plant operation expenditures comprised the sum of janitors' and engineers' salaries and supplies, the costs of light, power, water and fuel supply, and the expenses on insurance, rentals and other allied services, it appeared reasonable to assume that as transportation charges may add to costs of supplies in remote areas, and as insurance charges on buildings may vary according to the type of structure of the insured buildings and to the efficiency of the local fire-fighting

TABLE XV

THE PLANT OPERATION EXPENDITURES PER PUPIL IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	\$ ^b	Rank	District No.	\$	Rank	District No.	\$
1	1	70	1	51	111	1	39	74
2	24	69	2	29	99	2	45	71
3	11	66	3	48	96	3	35	55
4	8	66	4	17	88	4	37	54
5	75	62	5	49	87	5	38	53
6	68	61	6	50	84	6	41	53
7	67	60	7	54	84	7	40	50
8	52	60	8	46	82			
9	13	59	9	4	81			
10	71	59	10	26	81			
11	19	59	11	60	81			
12	7	58	12	66	81			
13	61	58	13	28	78			
14	57	57	14	47	76			
15	23	56	15	73	74			
16	76	55	16	53	74			
17	22	54	17	10	74			
18	15	54	18	16	71			
19	44	53	19	27	70			
20	2	53	20	69	70			
21	42	52	21	55	69			
22	63	50	22	9	68			
23	20	50	23	58	67			
24	3	50	24	59	63			
25	43	49	25	25	62			
26	31	47	26	5	61			
27	34	46	27	62	61			
28	70	46	28	56	60			
29	33	45	29	74	59			
30	36	45	30	72	59			
31	21	44	31	32	58			
32	77	40	32	14	54			
			33	18	45			
						Unattached Small Rural		
						1	A	232
						2	E	193
						3	D	176
						4	B	139
						5	J	133
						6	C	115
						7	F	114
						8	G	101
						9	I	92
						10	H	91

^aSource: Annual Report, 1961/2, op. cit., pp. Z. 22-3, Z.27-9.

^bRounded off to nearest dollar.

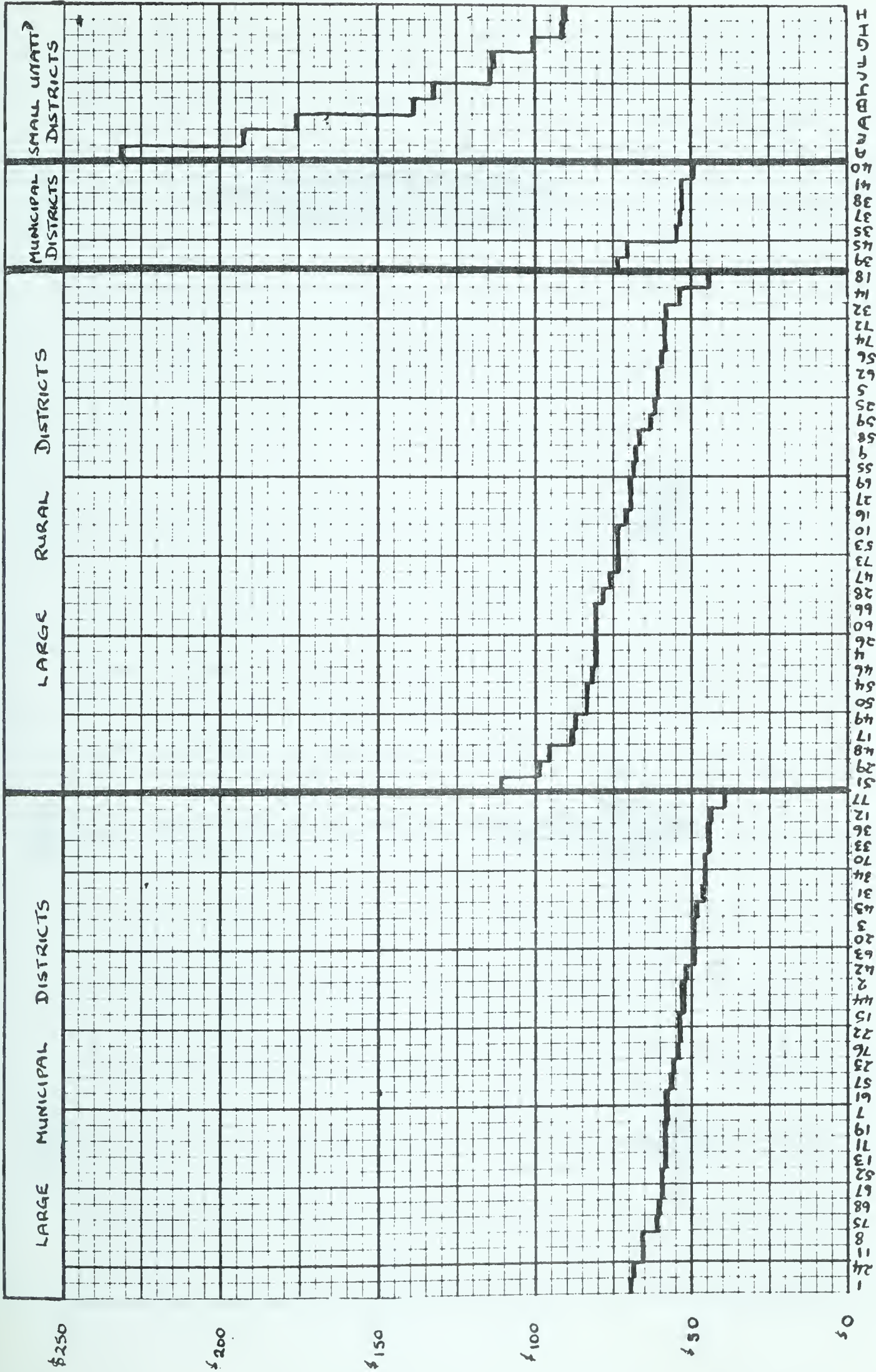


Figure 27. Plant operation expenditures per pupil in school districts 1961/2.

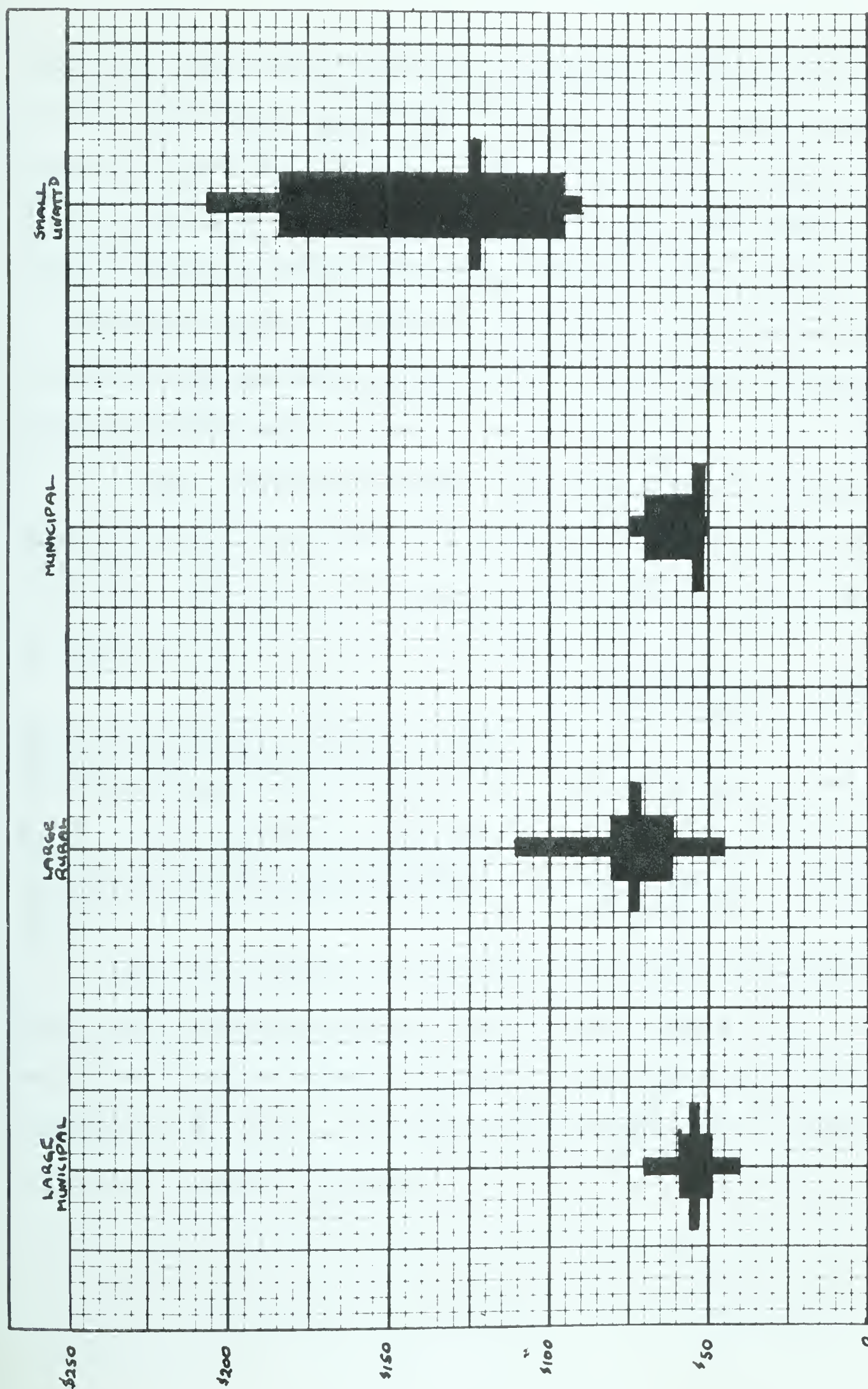


Figure 28. Summary of plant operation expenditures per pupil in school districts I96I/2 by classes of districts.

facilities, these expenditures will be somewhat higher in the rural areas. Yet these additional expenditures, if they existed, seemed inadequate to explain the fact that the plant operation expenditures in the Large Rural Districts were, at the upper limits of the range, some fifty per cent higher than those found in the Large Municipal and Municipal Districts. It seemed more probable, though no details were available to support the statement, that janitors' and engineers' salaries were the prime source of these wide differences.

It was considered reasonable that plant operation expenditures might be related to enrolments of pupils and to total expenditures in the districts. Comparisons were therefore made between ranks on these variables.

	Large Municipal Districts	Large Rural Districts
Range on enrolments of pupils of the ten districts ranked highest on plant operation expenditures per pupil	7th to 32nd	12th to 33rd
Range on total expenditures per pupil of the ten districts ranked highest on plant operation expenditures per pupil	1st to 22nd (8 in the highest 10)	1st to 20th (6 in the highest 10)

There was evidently a tendency for districts which ranked high on plant operation expenditures per pupil to rank somewhat low on pupil enrolments, and a rather stronger tendency for such districts to have high total expenditures per pupil, but these tendencies were not so strong as to predicate a causal relationship.

XII. THE CONVEYANCE EXPENDITURES PER PUPIL IN SCHOOL DISTRICTS IN 1961/2

The conveyance expenditures per pupil in the school districts are evidently a product of geography and policy. The attendance areas of a school will depend on the numbers of pupils within a given area. If this number be large and the area small, conveyance expenditures will likely be small. If the numbers be small and the areas large, policy may decide between the merits of centralized schools and much transportation and small schools with less transportation of pupils.

The data

The transportation expenditures per pupil in the school districts in 1961/2 varied from a high of \$100 to a low of zero.

The ranges in each of the four classes of school districts were as follows, from Table XVI and Figures 29 and 30.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 31.90	\$ 50.10	\$ 14.70	\$ 100.00
Low	.42	.00	.08	.00
Median	11.25	21.40	3.20	.00

The data related to the hypothesis

There were no ranges which were distinctive of any of the four classes of school districts, though that portion of the range above \$50.10 was unique to the Unattached Small Rural class of districts, there being one such case in that range. This district, Esperanza (District C) transports its pupils by water, evidently at considerable cost. Seven of the Unattached Small Rural Districts had no conveyance expenditures

TABLE XVI

THE CONVEYANCE EXPENDITURES PER PUPIL IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	\$ ^b	Rank	District No.	\$	Rank	District No.	\$
1	13	31.90	1	25	50.10	1	35	14.70
2	12	21.20	2	46	43.00	2	45	7.40
3	31	19.80	3	55	39.00	3	37	6.10
4	20	18.40	4	10	32.20	4	38	3.20
5	1	17.70	5	58	29.60	5	41	1.20
6	8	17.60	6	56	29.00	6	39	.50
7	71	17.00	7	50	27.60	7	40	.08
8	77	16.70	8	16	27.60			
9	22	15.80	9	69	25.90			
10	67	15.10	10	18	25.40			
11	76	15.10	11	29	24.50			
12	7	14.70	12	27	23.40			
13	24	12.80	13	54	23.20			
14	57	11.90	14	26	22.60			
15	2	11.80	15	17	22.40			
16	11	11.70	16	66	22.00			
17	75	10.80	17	74	21.40			
18	34	10.80	18	28	20.90			
19	42	10.30	19	5	19.30			
20	68	9.60	20	49	18.80			
21	33	9.50	21	32	18.70			
22	19	9.10	22	48	17.60			
23	63	8.00	23	4	16.50			
24	70	7.90	24	60	16.30			
25	15	7.80	25	72	16.30			
26	23	5.90	26	59	15.40			
27	3	5.30	27	14	15.30			
28	52	4.50	28	9	14.40			
29	44	3.00	29	53	13.10			
30	43	2.40	30	47	11.10			
31	36	2.30	31	62	10.30			
32	61	.42	32	73	10.20			
			33	51	.00			

Unattached
Small Rural

1	C	100.00
2	B	30.70
3	D	15.50
4	A	.00
5	E	.00
6	F	.00
7	G	.00
8	H	.00
9	I	.00
10	J	.00

^aSource: Annual Report, 1961/2, op. cit., pp. Z.22-3, Z.27-9.

^bRounded off to nearest ten cents, except where less than one dollar, where given to nearest cent.

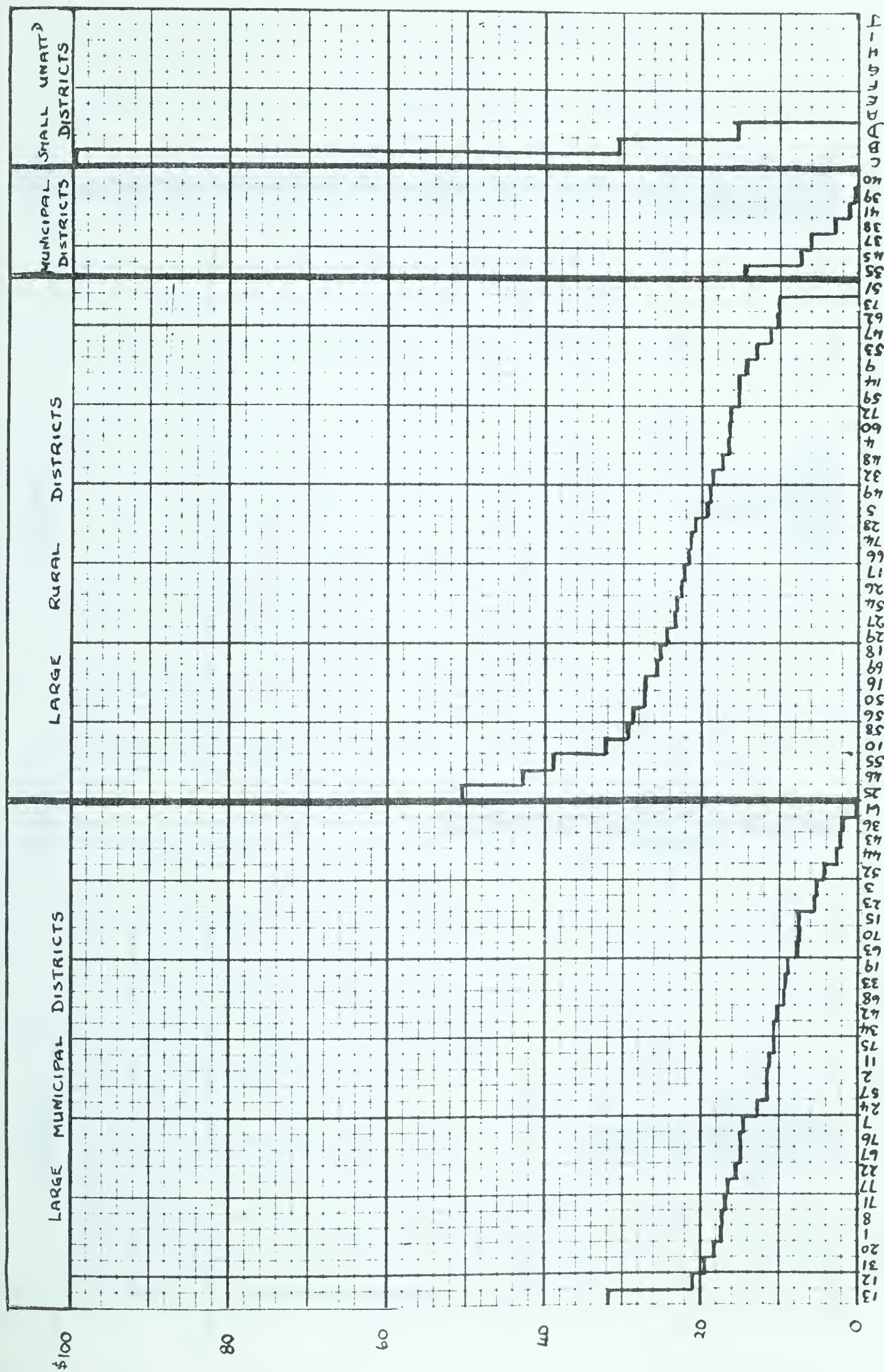


Figure 29. Conveyance expenditures per pupil in school districts 1961/2.

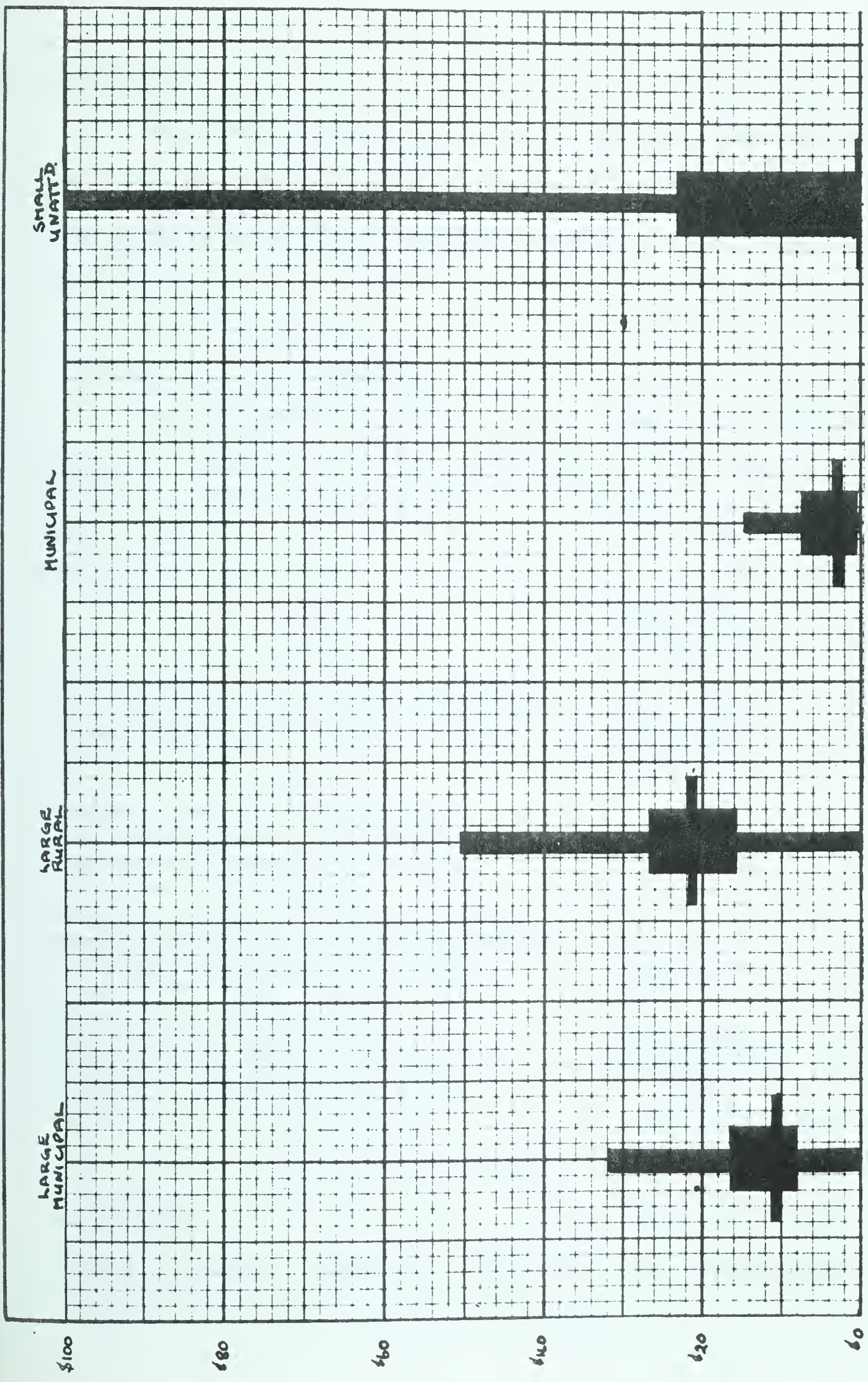


Figure 30. Summary of conveyance expenditures per pupil in school districts 1961/2 by classes of districts.

whatever.

In general, the Large Rural Districts bore the heaviest charges for pupil conveyance, the Large Municipal Districts the next heavy charges, the Municipal Districts the lightest charges of the three large classes of districts.

Relations to other variables

It was considered that conveyance expenditures might be reasonably related to densities of pupil populations, to the areas of districts to total expenditures and to the provincial grant ranks. Comparisons were therefore made to test the existence of such relationships.

	Large Municipal Districts	Large Rural Districts
Range on densities of pupil population per square mile of the ten districts ranked highest on conveyance expenditures per pupil	5th to 30th (6 in the lowest 10)	5th to 31st (6 in the lowest 10)
Range on areas of school districts of the ten districts ranked highest on conveyance expenditures per pupil	3rd to 28th	5th to 31st
Range on total expenditures per pupil of the ten districts ranked highest on conveyance expenditures per pupil	1st to 29th	2nd to 33rd
Range on provincial grants as a proportion of total revenues of the ten districts ranked highest on conveyance expenditures per pupil	1st to 26th (9 above the median)	1st to 25th (7 above the median)

The conclusions drawn from these comparisons may be summarized as follows:

- a. High conveyance expenditures per pupil were slightly related to low densities of pupil population per square mile.

- b. High conveyance expenditures per pupil were unrelated to the areas of school districts.
- c. High conveyance expenditures per pupil did not appear to be a prime source of high total expenditures per pupil.
- d. High conveyance expenditures per pupil were only slightly related to high provincial grants.

The answer to ancillary question Number 5, in the absence of any further evidence appeared to be negative; low densities of pupil population per square mile did not necessarily involve high transportation expenditures per pupil.

XIII. OTHER INSTRUCTIONAL EXPENDITURES PER PUPIL IN SCHOOL DISTRICTS IN 1960/2

This variable essentially comprises expenditures on school clerical services and on the costs of instructional materials, and would appear, even though the per pupil expenditures were relatively small, to have a considerable bearing on the qualities of the instructional programs in the districts. This discussion, however, was made in the succeeding chapter which relates to the educational variables.

The data

The other instructional expenditures in the school districts varied from a high of \$42.80 to a low of \$7.20. The ranges in each of the four classes of school districts were as follows, from Table XVII and Figures 31 and 32.

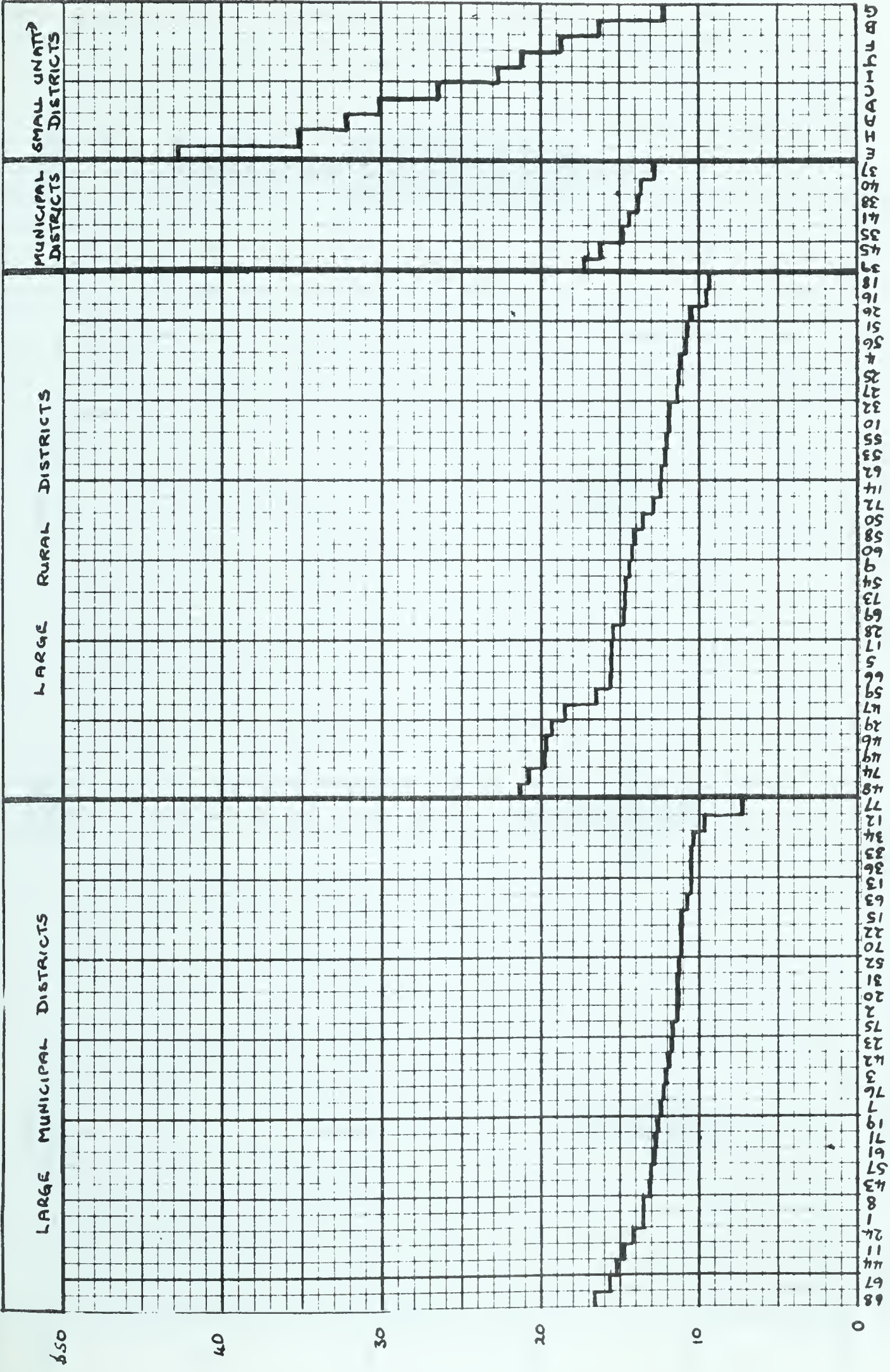


Figure 3I. Other instructional expenditures per pupil in school districts 1961/2.

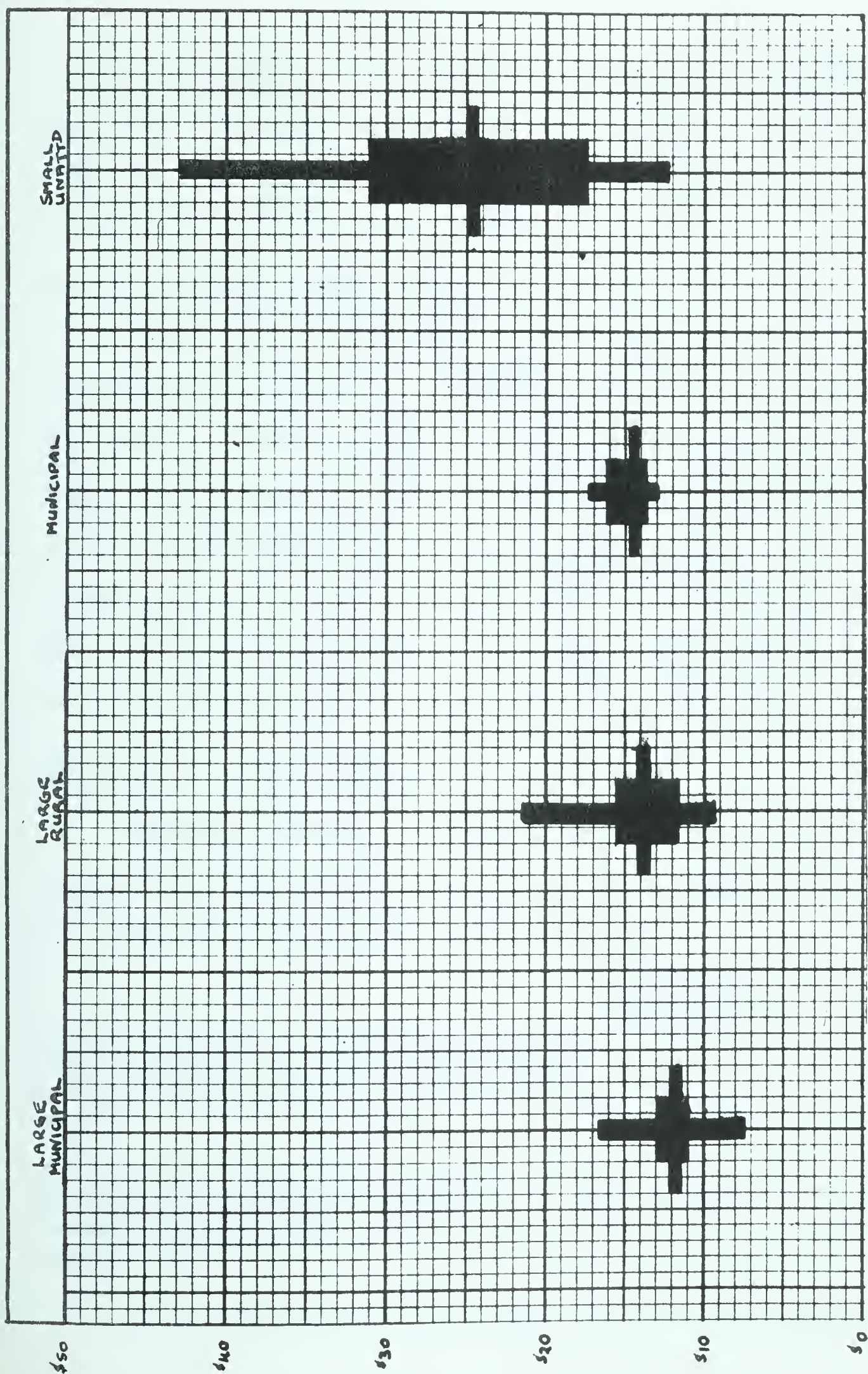


Figure 32. Summary of other instructional expenditures per pupil in school districts 1961/2. by classes of districts.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	\$ 16.70	\$ 21.30	\$ 17.40	\$ 42.80
Low	7.20	9.50	12.90	12.20
Median	12.10	14.00	14.40	24.75

The data related to the hypothesis

There were no ranges which were distinctive of any of the four classes of school districts, though that portion of the range above \$21.30 was unique to the Small Unattached Rural Districts, there being six such cases in that range; and that portion of the range below \$9.50 was unique to the Large Municipal Districts, there being one such case in that range. In each of the classes of districts, excluding the Municipal Districts, the lower limit of the ranges were less than half of the upper limits, indicating wide variations between districts in the same group.

Relations to other variables

The ranks of districts on other instructional expenditures were compared with their ranks on densities of pupil population and on local contributions to total educational expenditures.

	Large Municipal Districts	Large Rural Districts
Range on densities of pupils per square mile of the ten districts ranked highest on other instructional expenditures per pupil	1st to 32nd	6th to 30th
Range on local contributions to total expenditures of the ten districts ranked highest on other instructional expenditures	2nd to 18th	1st to 22nd (8 in the highest 10)

It was then concluded that other instructional expenditures per

pupil in the school districts were not related to the densities of pupils per square mile, but that there was a tendency for high local contributions to total expenditures per pupil to be partly expressed in high other instructional expenditures per pupil.

XV. SUMMARY OF THE CONCLUSIONS RELATED TO THE FINANCIAL VARIABLES IN THE SCHOOL DISTRICTS

The null hypothesis was upheld in the case of each of the financial variables considered. There were no distributions which were distinctive of any of the four classes of school districts. In only one case was there perfect correspondence between ranks on any two variables. In the Municipal Districts the ranks on growth rates of total expenditures per pupil corresponded perfectly with the ranks on growth of pupil populations, though it could not be said that a given growth rate of pupil population resulted in a mathematically related growth rate of total expenditures per pupil.

Tabulations were made to test the variables most closely associated with high total expenditures per pupil.

	Large Municipal Districts	Large Rural Districts
a. Assessment values per pupil	4	7
b. Annual growth rate in total expenditures	2	2
c. Local contributions to total revenues	4	6
d. Provincial grant as proportion of revenues	3	0
e. Debt charges per pupil	7	6
f. Teachers' salaries per pupil	4	7

	Large Municipal Districts	Large Rural Districts
g. Administration expenditures per pupil	6	5
h. Plant operation expenditures per pupil	8	6
i. Conveyance expenditures per pupil	4	3
j. Other instructional expenditures	6	6

The entries opposite the variables indicate how many districts in the highest ten ranks on total educational expenditures are found in the highest ten ranks on the variable in question. Since there were some thirty districts in each of the two classes of districts considered, the entry in each case would be approximately three (3) if chance alone were operating.

It appeared that high total per pupil expenditures resulted from no one expenditure item. No one expense in itself was sufficient to cause high total expenditures.

In the Large Municipal Districts high total expenditures appeared to be caused by a combination of:

- a. High plant operation expenditures per pupil;
- b. High debt charges per pupil;
- c. High administration expenditures per pupil; and
- d. High other instructional expenditures per pupil.

The following variables did not appear to affect total expenditures noticeably:

- a. Assessment values per pupil;
- b. Teachers' salaries per pupil;

c. Conveyance expenditures per pupil.

In the Large Rural Districts high total expenditures appeared to be caused by a combination of

- a. Teachers' salaries per pupil;
- b. Plant operation expenditures per pupil;
- c. Debt charges per pupil, and
- d. Other instructional expenditures per pupil.

The following variables did not appear to affect total expenditures per pupil:

- a. Conveyance expenditures per pupil;
- b. The annual growth rates of total expenditures.

High total expenditures in the Large Rural Districts tended to be supported by high assessment values per pupil, more so than in the Large Municipal Districts.

High total expenditures did not appear to be related to any of the physical variables considered in this study, though the Unattached Small Rural Districts did tend to have very high expenses. In the other three classes of districts high pupil enrolments could not be equated with low per pupil total expenditures.

In general, it appeared fair to reject any suggestion of financial determinism, which might claim that if a certain condition obtains in a district, then certain expenditure levels must follow. Each of the expenditures contributing to high total expenses appears to be subject to a local option, in that the expenses were to a large degree within the control of the districts, and could be reduced if the local school boards

so wished. For example, teachers' salaries could be reduced by engaging younger and minimally qualified staffs, an expedient which may recommend itself to some school districts, or which may be a natural consequence of some physical conditions within the districts. Certain conveyance expenditures might be the result of district centralization policies.

CHAPTER VI

SOME EDUCATIONAL VARIABLES IN THE SCHOOL DISTRICTS IN 1961/3

I. THE SELECTION OF THE VARIABLES

The selection of the variables was primarily governed by the availability of data, and by the form in which they were available. The design of the study limited data to those which were available on school districts as wholes; information on individual children or on individual schools was of use only so far as it could be related to districts. The data selected for use concerned the results of the provincial Grade VII examinations, the retention rates of secondary pupils in the districts, the numbers of pupils in accredited schools as compared with the entire district enrolments in secondary schools, and the average number of pupils per school in the districts. These four variables by no means exhaust the list of variables which might reasonably be supposed to bear on the qualities of the educational programmes and processes in the school districts. It is also by no means clear whether these or any variables measure excellence of the educational programme as such, for the quality of excellence has never been adequately defined in regard to education.

The research hypothesis was concerned with the ranges of the four classes of school districts and tested whether any distribution of the ranges was distinctive of any of the four classes of school districts. The ancillary questions were concerned with the relations of the educational variables to each other, and of the relations of the physical and financial variables to the educational variables in an attempt to test

whether any physical or financial conditions in the districts predicated high or low rank on the educational variables.

II. THE DISTRICT MEANS OF PUPIL SCORES IN PROVINCIAL GRADE VII EXAMINATIONS IN 1963

The district means of pupil scores in Provincial Grade VII examinations were defined supra page 18. It was the numerical equivalent average recorded by the Division of Tests, Standards and Research of the Department of Education in Victoria as the district mean score of all pupils examined in the districts. The mean of all pupil scores was 5.0, but it should be noted that this is not the mean of district mean scores.

The data

The district means of pupil scores in the provincial Grade VII examinations in 1963 varied from a high of 7.8 to a low of 2.6. The ranges for each of the four classes of school districts were as follows, from Table XVIII and Figures 33 and 34.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	5.58	5.42	6.04	7.80
Low	4.36	3.28	4.77	2.60 (0.0)
Median	4.97	4.57	4.94	5.03 (0.0)

The data related to the hypothesis

There were no ranges which were distinctive of any of the four classes of school districts, though that portion of the range above 6.04 was unique to the Unattached Small Rural Districts, there being two such cases in that range; and that portion of the range below 3.28 was unique

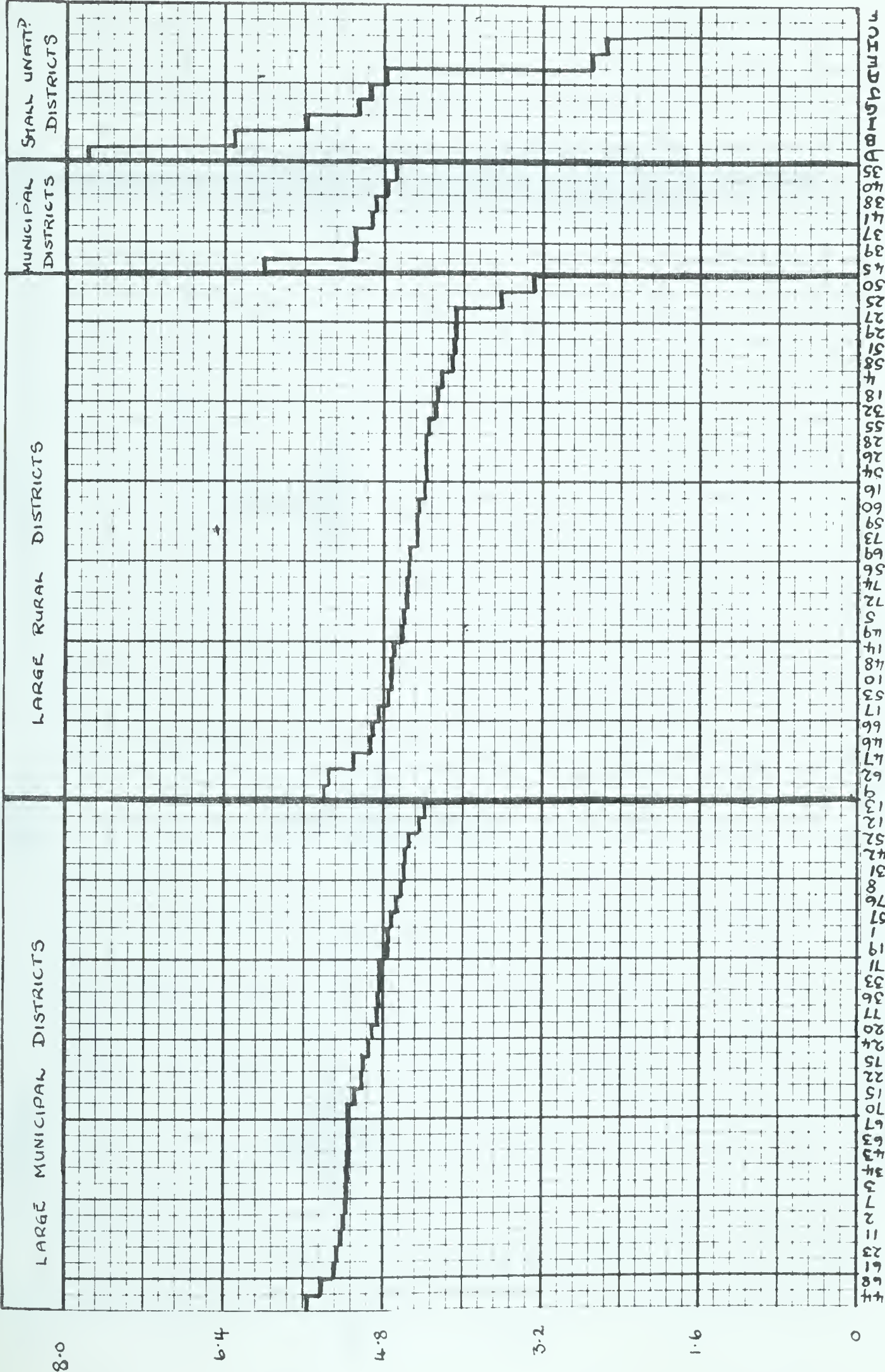


Figure 33. District means of pupil scores in provincial Grade VII examinations in 1963.

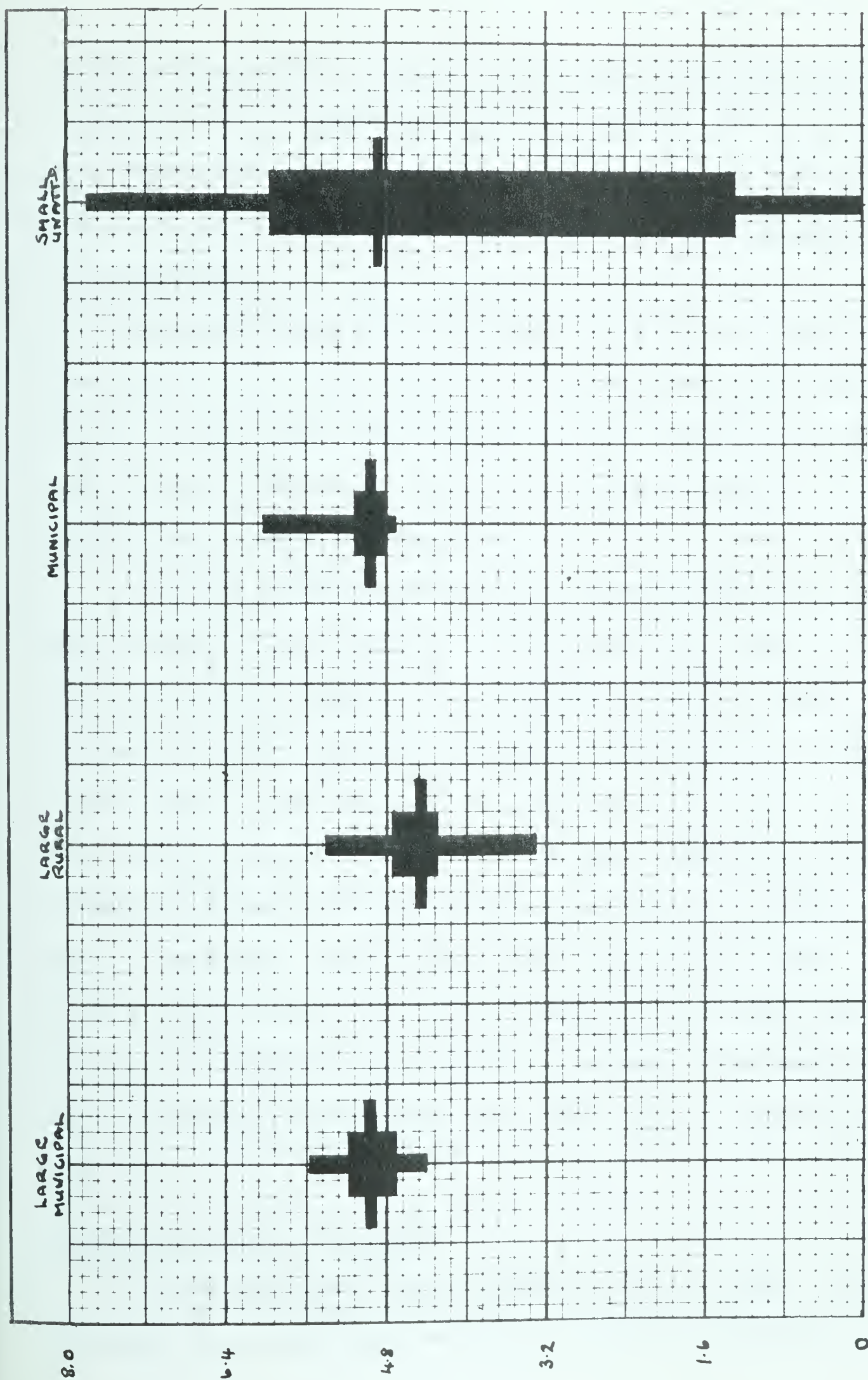


Figure 34. Summary of district means of pupil scores in provincial Grade VII examinations in 1963 by classes of districts.

to the Unattached Small Rural Districts again, there being two such cases in that range. It should be noted that two districts in this class of districts had no entries since they had no Grade VII pupils, and that the two districts in that portion of the range above 6.04 had but two pupils in grade seven.

The table above shows two lower limits and two medians for this class of districts; the figures in parentheses were those which would apply if the nil return from the two districts were treated as a score. The other figures resulted if the nil return were disregarded. In Figure 35, the nil returns were treated as scores.

The most extensive range and the highest median, if the nil returns were disregarded, was found in the Unattached Small Rural Districts, though the results may be compromised by the small numbers of pupils involved. In the three other classes of districts, the order of the upper limits was Municipal, Large Municipal and Large Rural Districts. The lower limits were in the same order, with the lower limit of the Large Rural Districts substantially below those of the other two classes. The medians were in the order Large Municipal, Municipal and Large Rural Districts. In this latter class, there were six districts with means below the lowest limit of the Large Municipal Districts, and two of the Unattached Small Rural Districts had means below the lowest limit of the Large Rural Districts.

Relations to other variables

It was considered that the district means of pupil scores might reasonably be supposed to be related to enrolments of pupils, to densities

of pupil populations, to total educational expenditures, to teachers' salaries per pupil, or to other instructional expenditures. Comparisons were therefore made.

	Large Municipal Districts	Large Rural Districts
Range on enrolments of pupils of the ten districts ranked highest on district means of pupil scores	1st to 23rd (6 in the highest 10)	2nd to 26th (4 in the highest 10)
Range on densities of pupil populations of the ten districts ranked highest on district means of pupil scores	1st to 21st (6 in the highest 10)	3rd to 23rd (5 in the highest 10)
Range on total educational expenditures per pupil of the ten districts ranked highest on district means of pupil scores	5th to 28th (3 in the highest 10)	2nd to 31st (3 in the highest 10)
Range on teachers' salaries per pupil of the ten districts ranked highest on district means of pupil scores	2nd to 28th (5 in the highest 10)	2nd to 23rd (5 in the highest 10)
Range on other instructional expenditures per pupil of the ten districts ranked highest on district means of pupil scores	1st to 30th (6 in the highest 10)	1st to 24th (6 in the highest 10)

It appeared that of the variables considered, the ones most closely related to high rank on the district means of pupil scores on the provincial Grade VII examination were the densities of pupils per square mile in the districts, the other instructional expenditures, and the teachers' salaries per pupil, though the relations were by no means close. It could not be said that any district with a high rank on any, indeed on all, these variables would have high rank on the district means of pupil scores. It could be stated with more confidence that high total expenditures per pupil were less related to the educational variable than the other variables considered.

III. THE RETENTION RATIO OF SECONDARY PUPILS IN SCHOOL DISTRICTS IN 1961/2

The data

The retention ratio of secondary pupils in school districts in 1961/2 varied from a high of 21.7 per cent to a low of 2.2 per cent. The ranges for each of the four classes of school districts were as follows, from Table XIX and Figures 35 and 36.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	20.9	18.3	21.6	21.7
Low	11.0	6.3	12.9	2.2 (0.0)
Median	16.6	12.1	17.6	7.8 (0.0)

The figures in parentheses under the Unattached Small Rural Districts heading refers to the fact that six districts in this class had no secondary pupils in Grades X, XI, XII or XIII. If the nil returns from these districts are treated as scores, instead of as the absence of an entry, then the figures in parentheses result. In Figure 36 the nil returns were treated as scores.

The data related to the hypothesis

There were no ranges which were distinctive of any of the four classes of school districts, though that portion of the range above 21.6 per cent was unique to the Unattached Small Rural Districts, there being one such case in that range; and that portion of the range below 6.3 per cent was also unique to the same class of districts, there being six such cases, if the nil returns were accepted as scores.

The ranges and medians of the Municipal and Large Municipal

TABLE XIX

THE RETENTION RATIO OF SECONDARY PUPILS IN SCHOOL DISTRICTS
IN 1961/62 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
District			District			District		
Rank	No.	%	Rank	No.	%	Rank	No.	%
1	7	20.9	1	5	18.3	1	45	21.6
2	15	20.2	2	69	17.9	2	39	18.1
3	71	19.3	3	16	17.4	3	41	17.7
4	11	19.2	4	48	16.9	4	35	17.6
5	20	19.1	5	47	16.2	5	38	14.6
6	67	18.5	6	66	15.6	6	37	14.2
7	34	18.4	7	9	14.9	7	40	12.9
8	22	17.8	8	46	14.5			
9	23	17.7	9	10	14.2			
10	3	17.6	10	17	14.0			
11	61	17.5	11	72	13.7			
12	12	17.5	12	32	13.6			
13	68	17.4	13	62	13.3			
14	75	17.2	14	28	12.5			
15	77	16.9	15	14	12.3			
16	44	16.6	16	4	12.2			
17	42	16.5	17	54	12.1			
18	33	16.2	18	51	11.6			
19	63	16.1	19	25	11.4			
20	19	15.4	20	29	11.3			
21	24	15.0	21	56	11.2			
22	36	14.4	22	58	11.2			
23	76	14.2	23	27	11.1			
24	1	13.9	24	59	10.8			
25	8	12.9	25	53	10.8			
26	13	12.2	26	49	10.3			
27	43	12.2	27	60	9.9			
28	2	12.0	28	73	9.3			
29	31	12.0	29	18	9.2			
30	52	11.9	30	55	8.5			
31	70	11.6	31	50	8.2			
32	57	11.0	32	74	7.0			
			33	26	6.3			
						Unattached Small Rural		
						1	I	21.7
						2	G	12.1
						3	D	3.4
						4	J	2.2
						5	A	-
						6	B	-
						7	C	-
						8	E	-
						9	F	-
						10	H	-

^aSource: Annual Report, 1961/2, op. cit., pp. Z.109-153.

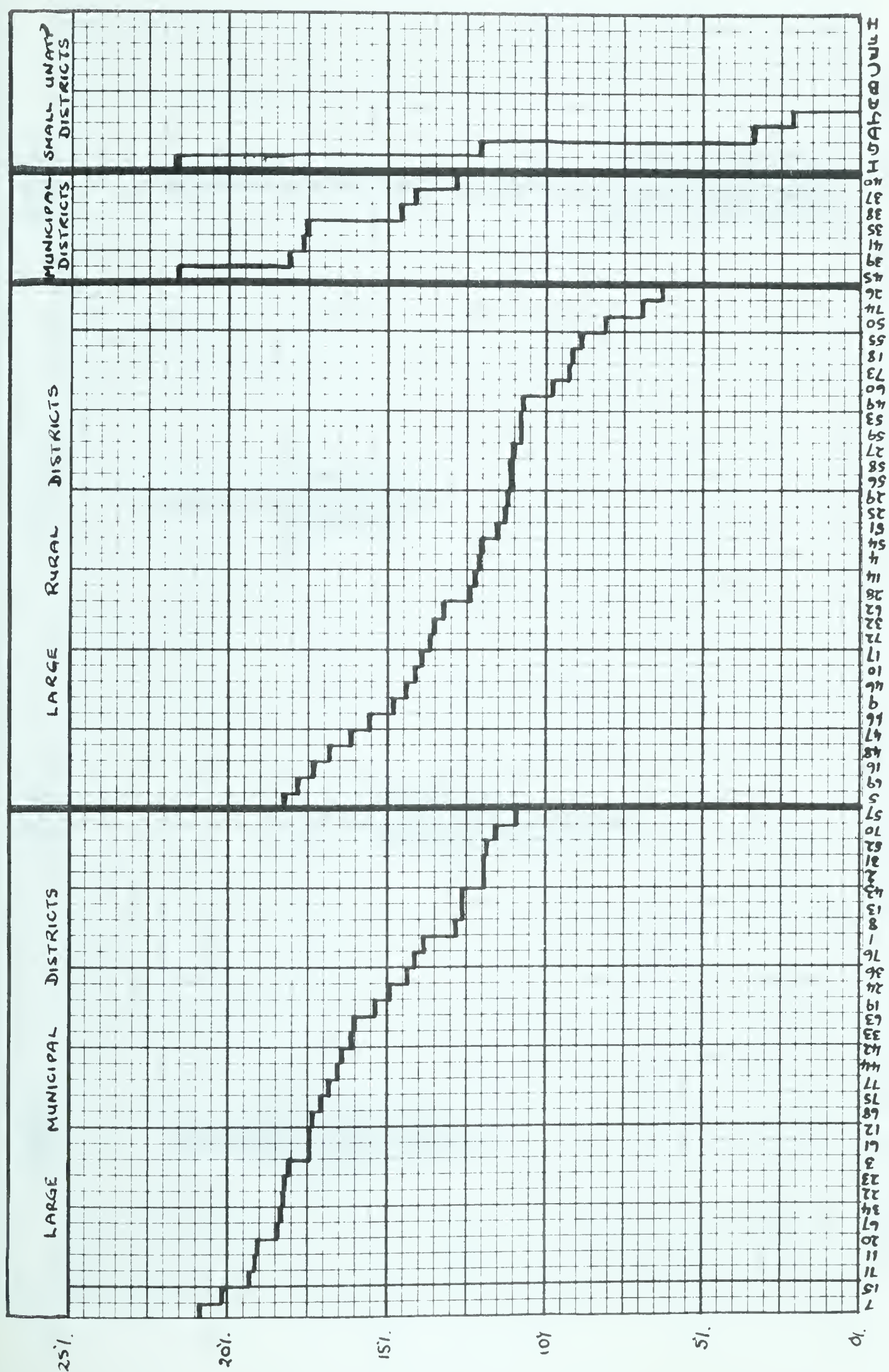


Figure 35. Retention ratios of secondary pupils in school districts 1961/2.

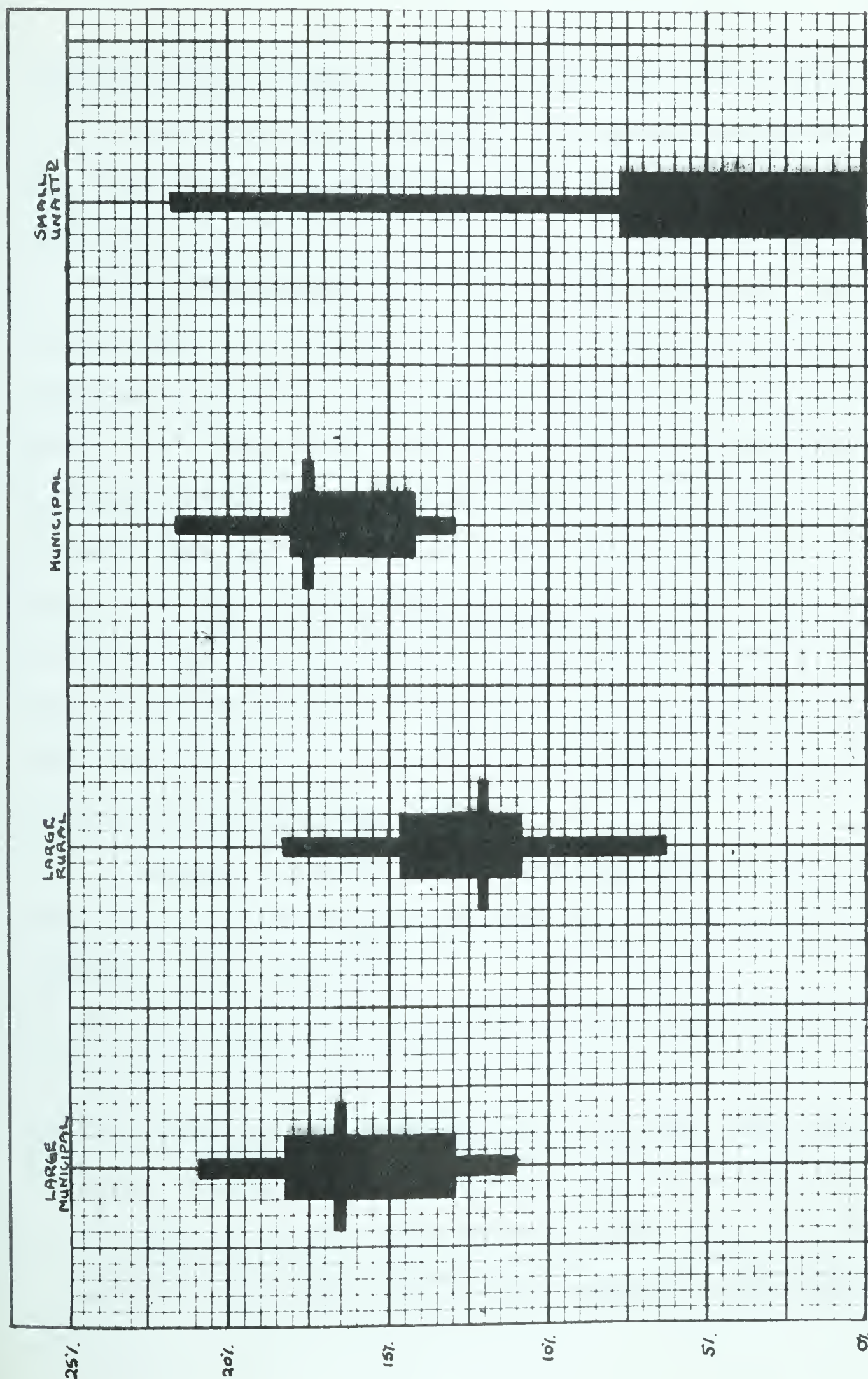


Figure 36. Summary of retention ratios of secondary pupils in school districts 1961/2 by classes of districts.

Districts were in close accord. The Large Rural Districts had an upper limit some 2.6 per cent below that of the Large Municipal Districts while the lower limit was approximately half that obtaining in the Municipal Districts.

It was concluded that in the Large Rural Districts the retention ratio tended to be much below that found in the Municipal and Large Municipal Districts. In the case of the Unattached Small Rural Districts, where a retention ratio is entered, it must be noted that pupils of secondary age may attend schools in other districts, particularly in the higher grades, so that while the ratios given do represent the retention rates in those districts, they do not represent truly the retention rates of pupils from those districts. In the case of District I (University Hill), the high retention ratio was not typical of the Unattached Small Rural Districts since, as noted on page 45 supra, this district is not rural but decidedly urban.

Attempts to explain the low retention ratios in the Large Rural Districts were admittedly speculative, though the following factors in whole or in part may apply:

- a. That importance which is attached to higher education in larger centres may not be so strong in the rural areas.
- b. That variety of secondary programme which might induce children to remain in school may be absent or severely limited in rural districts.
- c. That opportunity for remunerative employment at an early age which exists in rural areas might be less available in urban areas.

Relations to other variables

It was considered reasonable that the retention ratios might be related to the District Means on provincial Grade VII examinations, to the other instructional expenditures, to the teachers' salaries per pupil, to the total expenditures, to the densities of pupil populations to the enrolments of pupils, and to the areas of the districts. Comparisons of ranks were therefore made.

	Large Municipal Districts	Large Rural Districts
Range on district means of pupil scores of the ten districts ranked highest on retention ratios	4th to 22nd (5 in the highest 10)	1st to 20th (7 in the highest 10)
Range on other instructional expenditures per pupil of the ten districts ranked highest on retention ratios	2nd to 30th (2 in the highest 10)	1st to 32nd (6 in the highest 10)
Range on teachers' salaries per pupil of the ten districts ranked highest on retention ratios	1st to 23rd (6 in the highest 10)	2nd to 19th (6 in the highest 10)
Range on total expenditures per pupil of the ten districts ranked highest on retention ratios	2nd to 25th (3 in the highest 10)	2nd to 27th (3 in the highest 10)
Range on densities of pupil population of the ten districts ranked highest on retention ratios	3rd to 25th (2 in the highest 10)	5th to 23rd (6 in the highest 10)
Range on enrolments of pupils of the ten districts ranked highest on retention ratios	9th to 24th (2 in the highest 10)	2nd to 29th (3 in the highest 10)
Range on areas of districts of the ten districts ranked highest on retention ratios	7th to 31st (4 in the lowest 10)	11th to 31st (5 in the lowest 10)

In the Large Municipal Districts these relationships tended to support a presumption that the retention ratios in the districts were moderately related to the district means of pupils scores on provincial

Grade VII examinations and to the teachers' salaries per pupil. The latter relationship seems to be inevitable if the secondary grades were taught by the more highly trained and hence more highly paid teachers.

In the Large Rural Districts the relationships tend to support the presumption that the retention ratios were moderately related to the district means of pupil scores on the provincial Grade VII examinations, and also to low district areas, to high teachers' salaries per pupil, and also to high other instructional expenditures, though it could not be said that, even where these conditions obtained, the result was inevitably a high pupil retention rate.

IV. THE PERCENTAGE OF SECONDARY PUPILS ENROLLED IN ACCREDITED SCHOOLS IN SCHOOL DISTRICTS IN 1961/2

Since the accredited schools are presumed to be in some respects superior to other secondary schools, the percentage of secondary pupils attending such schools in the districts may be presumed to indicate some degree of excellence in the districts.

The data

The percentage of secondary pupils enrolled in accredited schools in school districts in 1961/2 varies from a high of 100 per cent to a low of zero per cent. The ranges for each of the four classes of school districts were as follows, from Table XX and Figures 37 and 38.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	100%	100%	100%	100%
Low	0%	0%	94.2%	0%
Median	100%	0%	100%	0%

TABLE XX

THE PERCENTAGE OF PUPILS ENROLLED IN GRADES X TO XIII
IN ACCREDITED SCHOOLS IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
District			District			District		
Rank	No.	%	Rank	No.	%	Rank	No.	%
1	2	100	1	14	100	1	35	100
2	3	100	2	16	100	2	37	100
3	7	100	3	17	100	3	38	100
4	11	100	4	66	100	4	40	100
5	12	100	5	69	100	5	41	100
6	15	100	6	60	99.3	6	45	100
7	19	100	7	72	96.2	7	39	94.2
8	22	100	8	56	94.5			
9	31	100	9	47	92.8			
10	33	100	10	54	86.2	Unattached Small Rural		
11	34	100	11	32	83.8			
12	36	100	12	10	80.4			
13	43	100	13	48	79.0	1	I	100
14	52	100	14	49	72.3	2	A	0.0
15	61	100	15	62	59.1	3	B	0.0
16	67	100	16	4	0.0	4	C	0.0
17	68	100	17	5	0.0	5	D	0.0
18	71	100	18	9	0.0	6	E	0.0
19	75	100	19	18	0.0	7	F	0.0
20	77	100	20	25	0.0	8	G	0.0
21	57	97.7	21	26	0.0	9	H	0.0
22	24	96.0	22	27	0.0	10	J	0.0
23	42	89.2	23	28	0.0			
24	23	88.4	24	29	0.0			
25	20	85.4	25	46	0.0			
26	1	83.9	26	50	0.0			
27	44	83.6	27	51	0.0			
28	70	78.3	28	53	0.0			
29	63	69.2	29	55	0.0			
30	8	31.9	30	58	0.0			
31	13	0.0	31	59	0.0			
32	76	0.0	32	73	0.0			
			33	74	0.0			

^aSource: Department of Education, Victoria.

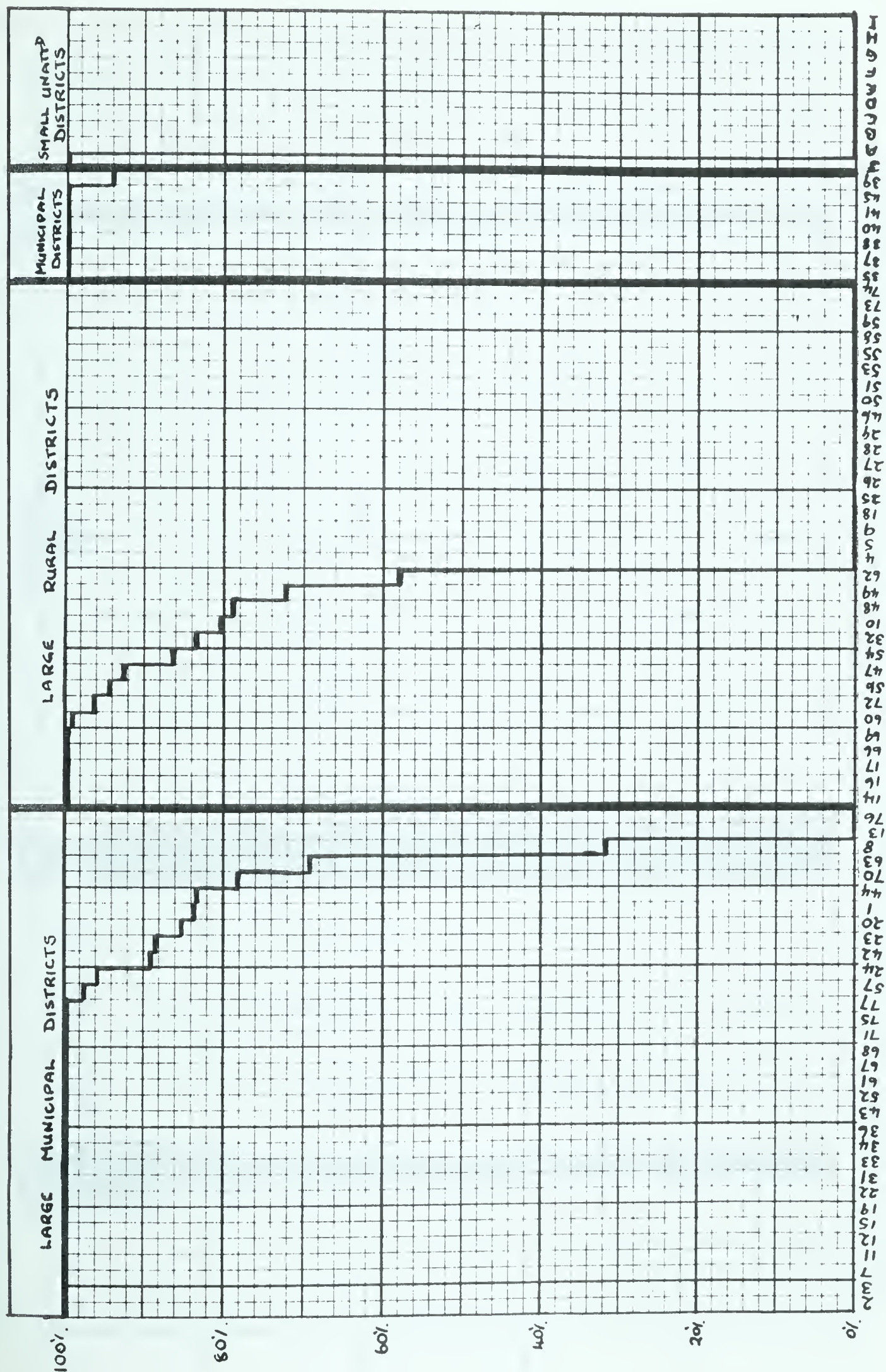


Figure 37. Percentage of pupils in Grades X to XIII enrolled in accredited schools in school districts 1961/2.

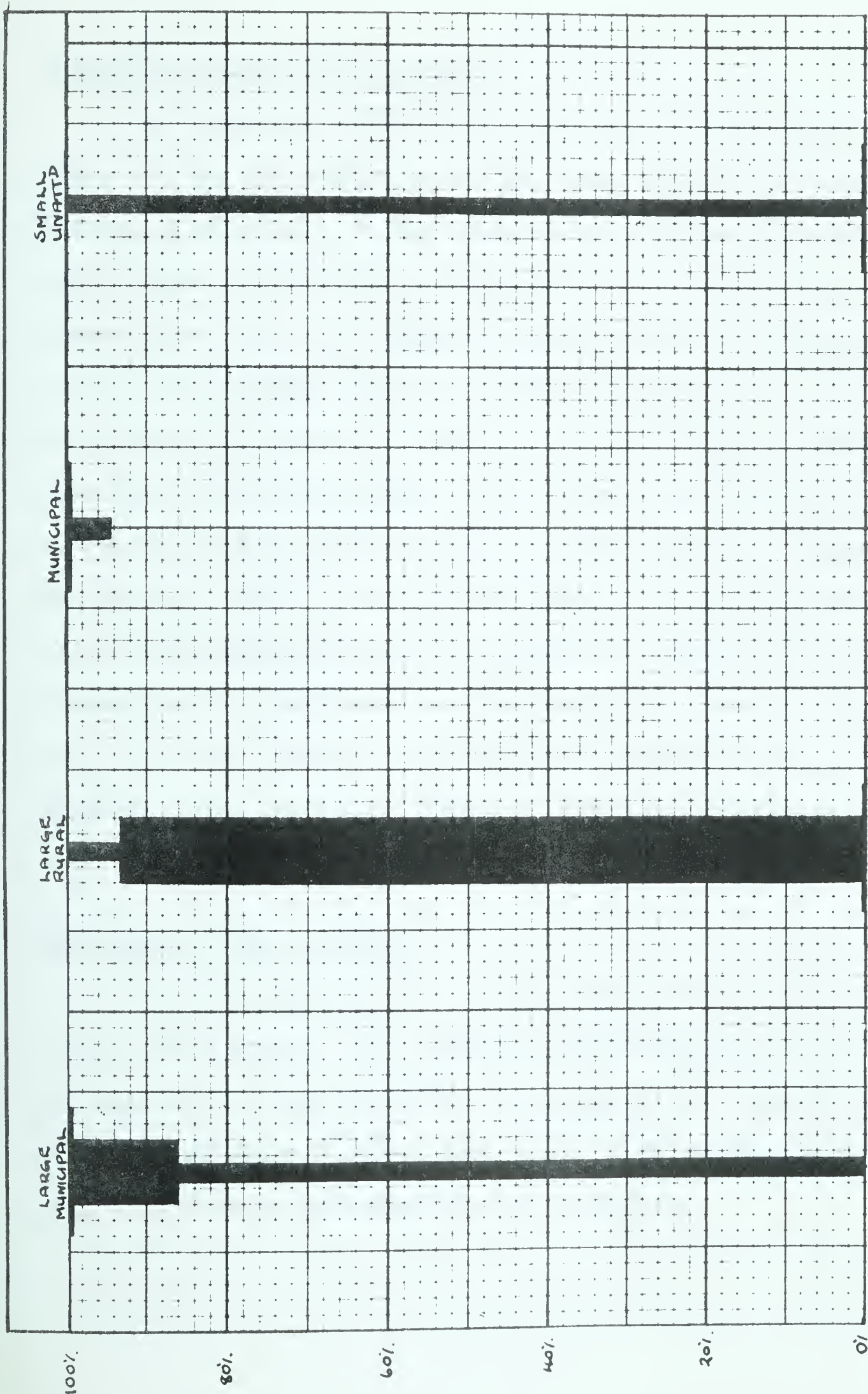


Figure 38. Summary of percentage of pupils in Grades X to XIII enrolled in accredited schools in school districts I96I/2 by classes of districts.

The data related to the hypothesis

No ranges were distinctive of any of the four classes of school districts, nor was any portion of the range unique to any one of the four classes of districts. It was noted that in the Municipal Districts, six out of seven districts had one hundred per cent and the remaining district had 94.2 per cent of its secondary pupils enrolled in accredited schools. In the Large Municipal Districts twenty districts of the thirty-two had one hundred per cent and two had zero per cent of their secondary pupils enrolled in accredited schools. In the Large Rural Districts five districts of the thirty-three had one hundred per cent and eighteen districts had zero per cent of their secondary pupils enrolled in accredited schools. It therefore seemed reasonable to assume that some quality or qualities favourable to accreditation were exhibited most strongly in Municipal Districts, less strongly in the Large Municipal Districts, still less strongly in the Large Rural Districts, and least strongly in the Unattached Small Rural Districts. Comparisons were made in an attempt to identify it.

Relations to other variables

In the Large Municipal Districts, Districts 13 and 76 had no pupils in accredited schools. The following table summarizes the ranks of these two districts on other variables. These ranks were examined in order to test what variables tended to distinguish these two districts from the others in the class of Large Municipal Districts.

<u>Variables</u>	Rank of District No. 13	Rank of District No. 76
a. Retention ratio of secondary pupils	26	23
b. District means of pupil scores on provincial Grade VII examinations, 1963	32	26
c. Other instructional expenditures	27	14
d. Administration expenditures	2	1
e. Teachers' salaries per pupil	18	9
f. Total expenditures per pupil	8	14
g. Densities of pupil population per square mile	5	19
h. Enrolments of pupils in the districts	32	31
i. Areas of school districts	28	21
j. Average numbers of pupils per school (from Table XXI)	31	30

The only variables on which the districts in question ranked highest or lowest were:

The administration expenditures per pupil,

The enrolments of pupils, and possibly

The average numbers of pupils per school.

In order to test the possibility that rank on these variables was related to accreditation or to the lack of accreditation, those five districts in the Large Rural class of district which enrolled one hundred per cent of their secondary pupils in accredited schools were ranked in the same way on the same variables.

Variables	Ranks of Districts				
	14	16	17	66	69
a. Retention ratios of secondary pupils	15	3	10	6	2
b. District means of pupil scores on provincial Grade VII examination in 1963	10	20	10	5	16
c. Other instructional expenditures per pupil	20	32	10	8	12
d. Administration expenditures per pupil	28	18	10	24	21
e. Teachers' salaries per pupil	18	16	9	14	7
f. Total expenditures per pupil	29	26	10	23	11
g. Densities of pupil population per square mile	4	5	23	9	7
h. Enrolments of pupils in the districts	11	29	25	13	17
i. Areas of the districts	29	31	17	24	28
j. Average numbers of pupils per school (From Table XXI)	1	11	7	10	17

None of these ranks nor any combinations of these ranks on these variables served to show any relationship which would distinguish these districts from the others. Hence it was concluded that the percentage of secondary pupils in accredited schools in the districts could not be said to bear any apparent or obvious relationship to the physical, financial or educational variables considered in this study.

V. THE AVERAGE NUMBERS OF PUPILS PER SCHOOL IN THE SCHOOL DISTRICTS IN 1961/2

The justification for including this variable in the group of educational variables lies in the assumption that small schools probably offer but a limited choice of courses; indeed some schools may perforce offer certain courses only by supervision of correspondence lessons. The

average numbers of pupils per school admittedly is open to certain errors; given a certain enrolment of pupils and a number of schools operating in a district, the average numbers of pupils per school does not distinguish between situations where there may be large numbers of elementary schools and one centralized secondary school and situations where there may be average sizes of schools and no centralization. Nevertheless, in a study which was concerned with districts, the average numbers were considered to be useful and fairly indicative of reality.

The data

The average numbers of pupils per school in the school districts in 1961/2 varied from a high of 834 to a low of twelve. The ranges for each of the four classes of school districts were as follows, from Table XXI and Figures 39 and 40.

	Large Municipal	Large Rural	Municipal	Unattached Small Rural
High	547	493	834	288
Low	63	51	182	12
Median	255	134	456	37

The data related to the hypothesis

There were no ranges which were distinctive of any of the four classes of school districts, though that portion of the range above 547 pupils per school was unique to the Municipal Districts, there being two such cases in that range; and that portion of the range below 51 pupils per school was unique to the Unattached Small Rural Districts, there being six such cases in that range. The classes of districts were in the order

TABLE XXI

THE AVERAGE NUMBERS OF PUPILS PER SCHOOL IN SCHOOL DISTRICTS
IN 1961/2 BY CLASSES OF DISTRICTS^a

Large Municipal			Large Rural			Municipal		
Rank	District No.	Pupils per School	Rank	District No.	Pupils per School	Rank	District No.	Pupils per School
1	44	547	1	14	493	1	39	834
2	61	498	2	4	427	2	40	660
3	43	416	3	5	237	3	41	529
4	77	392	4	47	212	4	45	456
5	11	388	5	62	188	5	38	326
6	15	374	6	54	187	6	37	256
7	2	330	7	17	187	7	35	182
8	70	315	8	53	178			
9	52	314	9	32	175			
10	36	310	10	66	163			
11	12	292	11	16	159			
12	22	291	12	9	152			
13	33	279	13	72	143			
14	3	277	14	18	139			
15	7	257	15	59	137			
16	68	252	16	49	136			
17	71	228	17	69	134			
18	67	210	18	56	127			
19	42	202	19	10	120			
20	24	200	20	28	113			
21	1	200	21	46	104			
22	23	195	22	48	103			
23	63	188	23	29	101			
24	34	172	24	74	100			
25	31	168	25	73	90			
26	20	152	26	60	88			
27	19	150	27	50	86			
28	75	146	28	55	78			
29	57	135	29	27	76			
30	76	122	30	58	71			
31	13	86	31	51	69			
32	8	63	32	26	60			
			33	25	51			

Unattached Small Rural		
Rank	District No.	Pupils per School
1	I	288
2	H	91
3	C	75
4	B	57
5	J	45
6	D	29
7	E	24
8	F	16
9	A	14
10	C	12

^aSource: Annual Report, 1961/2, op. cit., pp. Z. 22-23.

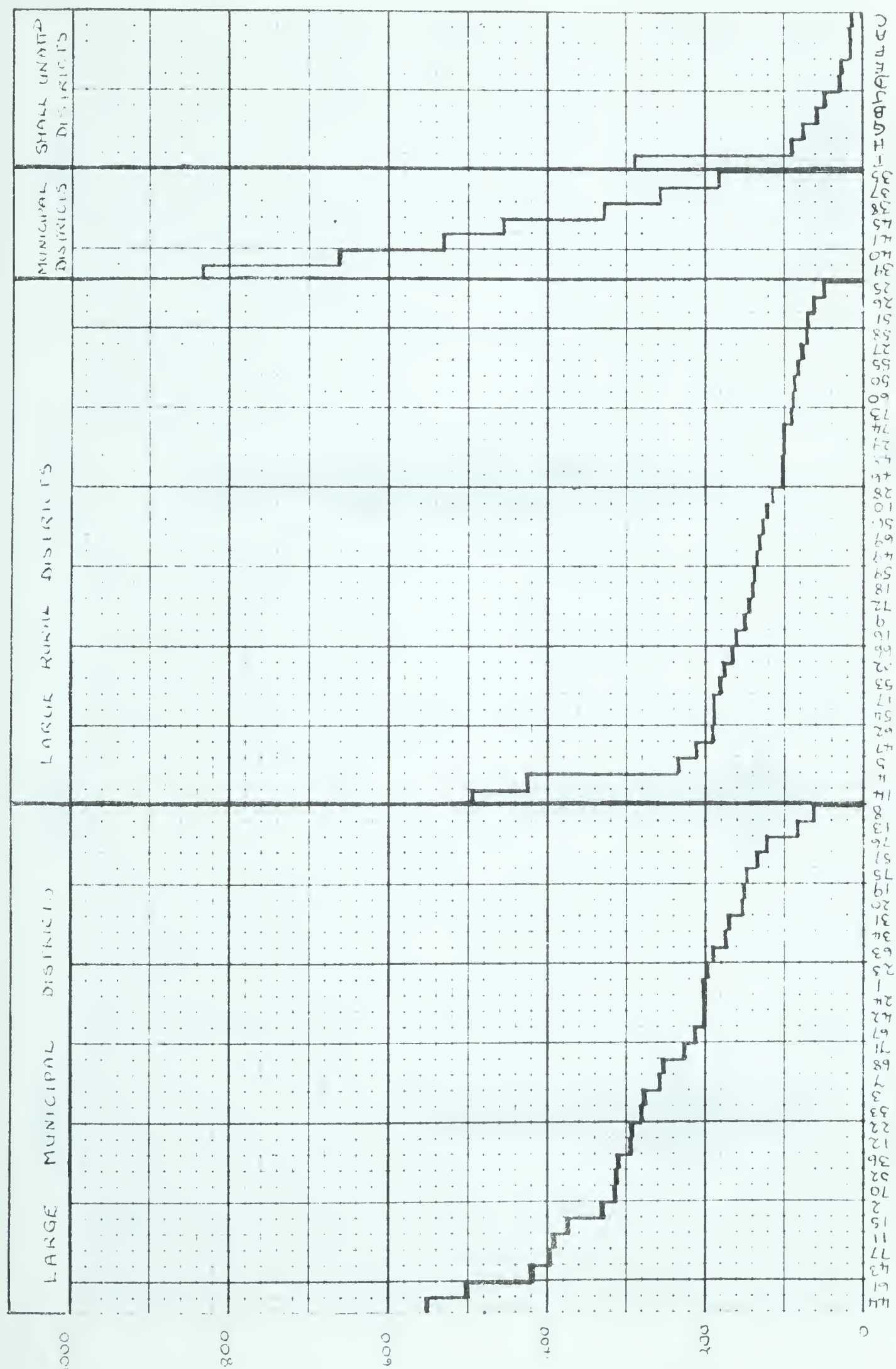


Figure 39. Average numbers of pupils per school in school districts 1961/2.

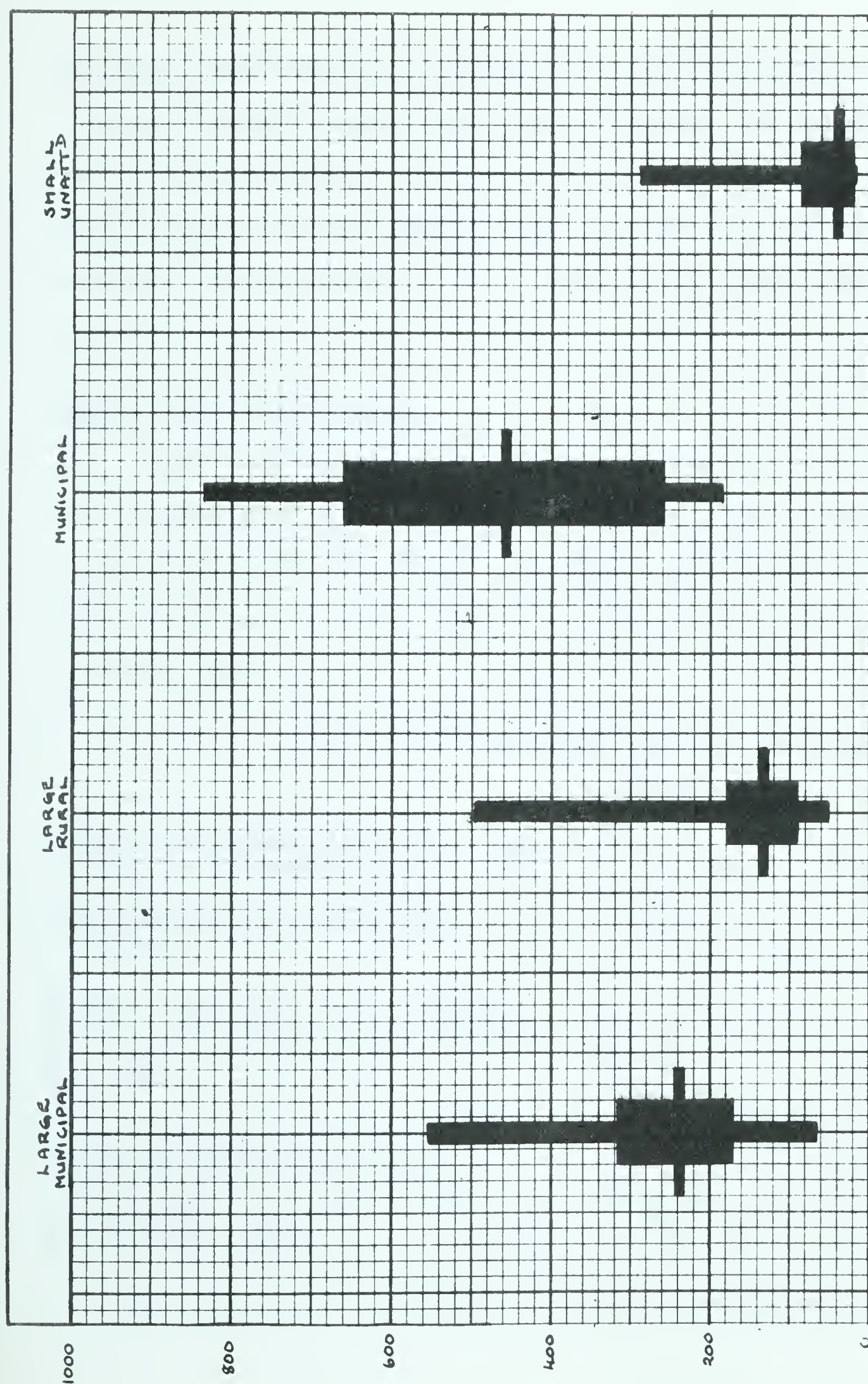


Figure 40. Summary of average numbers of pupils per school in school districts 1961/2 by classes of districts.

Municipal, Large Municipal, Large Rural and Unattached Small Rural Districts with respect to the upper limits, the lower limits and the medians. The differences between the median values were most noticeable; in ascending order of the classes of districts the ratios were approximately 1:4:7:12, taking the median value of the Unattached Small Rural Districts as unity.

Relations to other variables

Comparisons were made to test the relationships of the ranks of the Large Municipal and Large Rural Districts on certain other educational, financial and physical variables in an attempt to discover conditions which might contribute to or stem from high or low rank on average numbers of pupils per school in these classes of districts.

Relations between the educational variables

	Large Municipal Districts	Large Rural Districts
Range on percentage of secondary pupils enrolled in accredited schools in the districts of the ten districts ranked lowest on average numbers of pupils per school	7th to 32nd (6 in the lowest 10)	6th to 33rd (All but one have zero per cent)
Range on retention ratio of secondary pupils of the ten districts ranked highest on average numbers of pupils per school	2nd to 31st	1st to 25th (8 above the median)
Range on district means of pupil scores on provincial Grade VII examinations of the ten districts ranked highest on average numbers of pupils per school	1st to 30th (5 in the highest 10)	2nd to 27th (6 in the highest 10)

In view of these relationships it was considered that in the

Large Municipal and Large Rural Districts the average numbers of pupils per school in the districts affected the requirements for accreditation up to a certain minimum value which was approximately 130 to 180 pupils per school; thereafter, little effect was noticeable.

In the same classes of districts the retention ratio of secondary pupils in the districts was not materially affected by the average numbers of pupils per school; and the district means of pupil scores on the provincial Grade VII examinations were but slightly related to rank on average numbers of pupils per school in the districts.

Comparisons were made between ranks on average numbers of pupils per school and selected financial variables.

	Large Municipal Districts	Large Rural Districts
Range on total expenditures per pupil of the ten districts ranked highest on average numbers of pupils per school	6th to 32nd	7th to 31st
Range on teachers' salaries per pupil of the ten districts ranked highest on average numbers of pupils per school	2nd to 32nd	9th to 30th
Range on administration expenditures per pupil of the ten districts ranked highest on average numbers of pupils per school	12th to 31st	10th to 30th
Range on plant operation expenditures per pupil of the ten districts ranked highest on average numbers of pupils per school	3rd to 32nd	4th to 31st
Range on conveyance expenditures per pupil of the ten districts ranked highest on average numbers of pupils per school	8th to 32nd	13th to 31st
Range on other instructional expenditures per pupil of the ten districts ranked highest on average numbers of pupils per school	3rd to 32nd	4th to 28th

None of these relationships was particularly strong. There was some ground for suggesting that high rank on average numbers of pupils per school in the districts was moderately related to somewhat low rank on administration expenditures per pupil and to somewhat low rank on conveyance expenditures per pupil.

The following relationships were noted when ranks on average numbers of pupils per school in the Large Municipal and Large Rural Districts were compared with ranks on certain physical variables.

	Large Municipal Districts	Large Rural Districts
Range on areas of districts of the ten districts ranked highest on average numbers of pupils per school	6th to 32nd	12th to 33rd
Range on enrolments of pupils in the districts of the ten districts ranked highest on average numbers of pupils per school	1st to 28th	2nd to 25th
Range on densities of pupils per square mile in the districts of the ten districts ranked highest on average numbers of pupils per school	1st to 26th	1st to 23rd

Again, none of these relationships could be termed to be strong. The strongest relationship noted was that high rank on average numbers of pupils per school was loosely related to somewhat low rank on areas of districts in the Large Rural class of districts.

VI. SUMMARY OF CONCLUSIONS RELATED TO EDUCATIONAL VARIABLES IN SCHOOL DISTRICTS

The null hypothesis was upheld in the case of each of the educational variables considered. There were no distributions which were distinctive of any of the four classes of school districts. There was

also no correspondence between the ranks of the districts in any of the four classes of school districts on any two variables.

Nevertheless, certain conclusions may be stated with some confidence, and other conclusions may be admitted as possibilities.

1. All four classes of school districts included samples which ranked high on each of the educational variables. Such high rank was most common in the class of Municipal Districts, less common in the Large Municipal Districts, still less common in the Large Rural Districts, and least common in the Unattached Small Rural Districts. The last class includes many districts which were excluded from certain educational variables concerned with the secondary grades of pupils by reason of the fact that they did not enrol such grades.
2. There was little correspondence between ranks of the districts on different educational variables. Hence it was concluded, that as far as the evidence considered was concerned, there was no general factor of educational excellence of which the educational variables attempted to test different aspects. The variables considered in this study must then be regarded as separate entities and not as aspects of one entity.
3. Notwithstanding the above argument, it was concluded that districts which operated in a framework of high enrolments of pupils, operated schools where the average enrolments of pupils was over a general minimum of one hundred and fifty pupils, and ranked high on other instructional expenditures were more likely to attain high rank on the educational variables than otherwise would be the case.

CHAPTER VII

SUMMARY OF CONCLUSIONS AND IMPLICATIONS; AND RECOMMENDATIONS FOR FURTHER RESEARCH

I. SUMMARY OF CONCLUSIONS

Recapitulation of the problem

The school districts of British Columbia were formerly classified, primarily on the basis of settlement patterns, into Municipal, Large Municipal, Large Rural and Unattached Small Rural School Districts. The basis of this classification was as follows:

The Municipal Districts were those in which the boundaries were coterminous with an urban municipal boundary.

The Large Municipal Districts were composed of one or more urban municipalities and a rural area.

The Large Rural Districts were composed of rural areas with no urban component other than villages.

The Unattached Small Rural Districts were those small districts which were so isolated that they could not be attached to any of the other large units.

Those eighty-two districts which had been in continuous existence for eleven years were grouped within these four classes and totalled seven Municipal Districts, thirty-two Large Municipal Districts, thirty-three Large Rural Districts and ten Unattached Small Rural Districts.

The research hypothesis answered

Some twenty variables were selected, which bore on the physical,

financial and educational characteristics of the districts, and the eighty-two districts were ranked on these variables within the classes. The research hypothesis, couched in the null hypothesis form, was that there were no significant distributions to be found of the variables as listed, which were typical and distinctive of the four classes of school districts. This hypothesis was upheld. The four classes of districts could not be distinguished one from another by ranges which were unique in their entirety; though certain portions of the range were unique to one or more classes of districts.

The ancillary questions answered

Certain ancillary questions were also postulated which bore on the relations of the ranks of the districts on two or more variables, and both within and between the classes of districts. These ancillary questions are now answered.

1. High rates of growth of pupil populations in the districts did not appear to be related to district indebtedness as shown by high debt charges per pupil in the same districts.
2. In the Municipal Districts only, high rates of growth of pupil population corresponded to high rates of growth of total expenditures per pupil as far as ranks on the variable were concerned, but it could not be said that a given rate of growth on the one variable was mathematically related to a given rate of growth on the other variable. In the Large Municipal and Large Rural Districts there was a moderate tendency for high rank on growth rate of pupil population to be associated with high rank on the growth rate in total expenditures per

pupil.

3. The educational variables can only be considered as separate entities, not as various aspects of one entity which might be called "educational excellence". In the Large Municipal and Large Rural Districts, high total expenditures per pupil appeared to be unrelated to high district means of pupil scores on the provincial Grade VII examinations; it appeared to be unrelated to the retention rate of secondary pupils in the school districts; it appeared to be unrelated to the proportion of secondary pupils enrolled in accredited secondary schools; and it appeared to be unrelated to the average numbers of pupils per school in the districts.
4. There was no evidence that districts with high pupil enrolments operated more cheaply than those with lower enrolments of pupils, except that the very small Unattached Small Rural districts tended to have very high total expenditures per pupil.
5. Districts with low densities of pupil populations per square mile did not necessarily have high transportation expenditures per pupil, though there was a tendency for districts which ranked high on conveyance expenditures per pupil to have somewhat low rank on densities of pupils per square mile.
6. High total expenditures per pupil in the school districts did not appear to be occasioned by any one factor. In the Large Municipal Districts and in the Large Rural Districts, high total expenditures per pupil seemed to be associated somewhat loosely with high plant operation expenditures per pupil, with high debt charges per pupil, with high

other instructional expenditures per pupil and with moderately high teachers' salaries per pupil. These high total expenditures tended to be supported in the Large Rural Districts, if not in the Large Municipal Districts, by rather high assessment values per pupil.

7. High rank on the several educational variables did not appear to be closely associated with any of the physical or financial variables in any way that predicated that high rank on the educational variables depended on a given set of conditions. There was some possibility that high densities of pupil populations and high other instructional expenditures per pupil in the districts contributed somewhat to high rank on the district means of pupil scores on the provincial Grade VII examinations.
8. There was no evidence that related the district means of pupil scores on the provincial Grade VII examinations, the retention ratio of secondary pupils in the districts, the proportion of secondary pupils enrolled in accredited secondary schools in the districts, and the average numbers of pupils per school in the districts in a way which tended to suggest that these variables attempted to measure different aspects of a global entity which might be termed "educational excellence" in the districts. Ranks of the districts on the several educational variables bore little correspondence to each other, and hence it was concluded that the educational variables must be considered as separate entities.
9. There was some evidence to suggest that in the Large Rural Districts, high assessment values per pupil tended to support high total

expenditures per pupil, and in the same class of district, high total expenditures per pupil tended to support high teachers' salaries per pupil, but in general there was no evidence that suggested that the assessment values per pupil tended to control the funds available for educational expenditures.

10. The general question bore on the relations of the variables, one to another. Specific aspects of this question have been discussed in the foregoing ancillary questions, and in the observations following the presentation of the individual variables in the text. Such latter observations were summarized at the end of the chapters on the three classes of variables.

Central tendencies in classes of districts

In general, while examinations of the ranges of each of the classes of districts on each of the variables fails to discriminate between the classes of districts, this should not obscure the fact that there were differences between the classes of districts, in some instances small, but in other instances quite large. These differences are best illustrated by the examination of the median values, which were tabulated as follows:

	Large Municipal Districts	Rural Districts	Municipal Districts	Unattached Small Rural Districts
1. Areas in square miles	495	2,500	44	26
2. Pupil population	3,673	1,204	5,936	37
3. Densities of pupil populations per square mile	6.0	.7	185	2.0
4. Annual growth rate of pupil population	6.8%	9.9%	13.4%	.2%

<u>The Variables</u>	<u>Large Municipal Districts</u>	<u>Large Rural Districts</u>	<u>Municipal Districts</u>	<u>Unattached Small Rural Districts</u>
5. Assessment values per pupil	\$6,900	\$6,800	\$9,900	\$4,450
6. Total expenditures per pupil	\$ 354	\$ 413	\$ 354	\$ 578
7. Annual growth rate of total expenditures	17.5%	13.7%	27.0%	13.4%
8. Local contribution to total expenditures per pupil	\$ 147	\$ 143	\$ 191	\$ 77
9. Percentage of total revenues from provincial grants	56%	58%	43%	62%
10. Debt charges per pupil	\$ 42	\$ 51	\$ 58	\$ 0
11. Average teachers' salaries annually	\$5,495	\$5,360	\$6,040	\$6,520
12. Teachers' salaries per pupil	\$ 211	\$ 215	\$ 225	\$ 337
13. Administration expenditures per pupil	\$ 11.75	\$ 20.80	\$ 13.30	\$ 28.65
14. Plant operation expenditures per pupil	\$ 54.50	\$ 74	\$ 54	\$ 124
15. Conveyance expenditures per pupil	\$ 11.25	\$ 21.40	\$ 3.20	\$ 0
16. Other instructional expenditures per pupil	\$ 12.10	\$ 14.00	\$ 14.40	\$ 24.75
17. District means of pupil scores on provincial Grade VII examinations	4.97	4.57	4.94	5.03
18. Retention ratio of secondary pupils	16.6	12.1	17.6	7.8
19. Percentage of secondary pupils enrolled in accredited schools	100%	0%	100%	0%
20. Average numbers of pupils per school	255	134	456	37
N =	32	33	7	10

Deterministic theories discounted

The bulk of the evidence tends to suggest that theories of geographic and financial determinism which might imply that a certain

geographic or financial condition in the school districts will inevitably cause a related effect, either in the financing of education or in the effectiveness of education in the districts, receive little support from a detailed examination of the evidence available in British Columbia. For example, it seemed reasonable to assume that a high rate of growth in pupil population in the districts must inevitably cause a related growth rate of total expenditures on education; yet this was not the case except in the Municipal Districts where it was noted that the ranks of districts on the former variable corresponded perfectly with the ranks of the same districts on the latter variable. In general "reasonable assumptions" tended to prove erroneous.

General conclusions

The evidence tended to suggest that the existing structure for financing education was sound. There were no data which suggested that the natural wealth of the school districts in terms of property assessments for school purposes limited the funds available for the support of education. While this financial equity may be accepted, it was still obvious that equality of educational opportunity in the classes of districts and in the individual districts within the classes had not been attained. The district means of pupil scores on the provincial Grade VII examinations, while not without certain drawbacks as an indicator of educational effectiveness, still tended to indicate that certain districts were either offering a less effective or a different programme than were others. The differences in the retention ratios of

secondary pupils and the ratio of secondary pupils enrolled in accredited schools in the districts tended to support this viewpoint. Yet it is difficult to suggest what remedial measures could be taken by the Provincial Department of Education to improve the situation. Financial support seemed to be available, but the expenditure of these funds did not appear to be particularly related to such measures of educational excellence as had been considered in this study. This writer does not doubt that local facilities, local organizations and local attitudes toward education tend to be the major factors in establishing district standards of educational excellence.

II. IMPLICATIONS OF THE STUDY

The major implications of the study stem from the fact that the null hypothesis was uniformly upheld in respect of all twenty of the selected variables, and from the fact that the ancillary questions were answered, with some minor qualifications, in the negative. When some eighty-two school districts are grouped in classes on the basis of apparently well defined settlement patterns, and when investigation of these groups was carried out in respect of twenty physical, financial and educational variables only to disclose that no class of districts had a range on any of the variables which distinguished it from the other classes of districts, it may be presumed that further examination of other variables is unlikely to yield evidence which will distinguish between classes of districts grouped on the basis of settlement patterns.

The answers to the ancillary questions which bore generally on

reasonable speculation on the relations between the variables, suggest that apparently reasonable assumptions should be subject to test and not regarded as axioms. For example, it did seem reasonable to assume, if ten per cent more pupils are to be enrolled in a district in a coming year, that expenditures will increase more than in a district where but five per cent more pupils are to be enrolled. Yet this is not necessarily the case. One possible explanation for this might be that district facilities are sufficiently flexible that expansions of facilities may proceed in "quantum jumps". Existing facilities may be "stretched" to a certain limit before new facilities may be deemed imperative.

Sufficient variables were considered in this study to justify the assumption that an "output" of educational variables might be related to an "input mix" in terms of expenditures. A recent study by Cheal²⁹ suggests that within the framework of certain indicators, inter-provincial expenditure differences might account for about sixty per cent of the differences found in output (measured in pupil retention rates). Cheal's study offers some parallels to the present study, if the provinces are regarded as roughly comparable to classes of districts. The examination of measures of central tendency did suggest that there are differences between classes of districts in the same way that Cheal demonstrates that there are inter-provincial differences. The use of average values, however, tends to obscure the fact that the differences between groups

²⁹J. E. Cheal, Investment in Canadian Youth (Toronto: The MacMillan Co., 1963).

were generally far smaller than the differences within groups. In effect there was no strong evidence that the major source of variation in output was, within the limits of the present study, the variation in input.

If the premise is entertained that the physical conditions and financial structures on the district basis do not necessarily determine the degree of excellence of the educational offerings, attention might then be usefully focussed on the input-output mix of schools within the districts and of classes within the schools, and on the attitudes toward and processes of education on a local basis.

While the responsibility for education rests on the Legislative Assembly, certain powers for education are delegated to the school boards. These powers may be mandatory or discretionary.³⁰ That is, certain things must be done, while others may be done. If that which must be done, in the eyes of the provincial authorities, is being done; and if the variation in outputs is so extreme that in the Large Rural Districts the retention ratio of secondary pupils varies from 18.3 per cent to 7.0 per cent, then it follows that the causes of these variations may lie within the discretionary areas of the school board's powers. But before action can be taken by local authorities to narrow differences in outputs, it is necessary that output criteria be established and that the values for all districts be computed and published by a central authority. There

³⁰F. Enns, "Some Legal Considerations Affecting the School Budget," School Budgeting (Edmonton: Division of Educational Administration, University of Alberta, 1962), p. 63.

are not generally available to the interested public any data on the districts and schools from which useful comparisons can be made of the outputs of the districts. If it is held that the education of children is of general concern to the public, then information provided to parents should enable them to relate the individual report card to the school, to the district, and to the provincial standards, and should also convey data on other output criteria, such as retention and accreditation, in relation to all the districts of the province.

It might be said that full information on standings of districts, schools and classes will lead to recriminations and apportionment of blame to persons, processes and organizations which are not entirely responsible for the results which may have been observed. This implies that a given standing on an output is in some way caused by a prior condition. If such is the case, the cause must be isolated. Is a given standing "caused" by provincial policies, by certain local expenditures, by physical conditions in the districts, by locally adopted procedures, by principal leadership patterns, by staff qualities or by the native endowments of the children? The application of systems analysis to the entire educational process offers a promising lead into these and related problems. The educative system is composed of complex and interacting factors which make it impossible for thinking persons to point a minatory finger at the classroom teacher and state, "You alone are to blame for this condition of affairs." A recent study of systems analysis as applied to education in Alberta suggests that variations in pupil achievement in terms of province-wide Grade nine examinations results

may be allocated in roughly these proportions:³¹

Source of Variation in Achievement	Percentage of Total Variation in Achievement
Classes	19.28%
Schools	2.80%
Districts	10.28%
Pupils	67.64%

If these allocations are valid, it follows that total processes rather than isolated factors in education should be studied. While pupil attitudes and endowments appear to be the major factor in variations of pupil achievement, the classroom (which may be primarily regarded as the teacher performance) and the district contribute substantially to variation in pupil achievement. The implication here is that perhaps some policy of, or condition in the district organization is affecting output and should be identified. Inasmuch as classes and schools are the result of district decisions, so is the responsibility for securing, as far as is possible, desired and desirable outcomes to these policies in the districts.

This study has tended to show that consideration of input variables between districts does not account satisfactorily for variations in output rankings. Emphasis should shift to variables within districts,

³¹T. B. Greenfield, "Administration and Systems Analysis," The Canadian Administrator. Vol. III, No. 7 (Edmonton: Department of Educational Administration, University of Alberta, April, 1964).

in schools and in classrooms. Such investigations can best be made in a programme of planned research under the sponsorship of the Department of Education, and it is advocated here that in order to focus resources and research, certain districts be designated as "Research Districts" for a period of years, and that in such districts special funds and facilities be made available so that personnel and programmes may be manipulated to test the effect of variations of input on educational output.

II. SUGGESTIONS FOR FURTHER RESEARCH

In an exploratory study such as this, it was perhaps inevitable that many aspects of education which could have been usefully examined as variables were omitted; and it is also certain that many of the variables which were employed could have been examined in a different manner.

The following suggestions bear on these aspects of the problem:

1. What are the characteristics of those districts which rank high on variables which indicate "educational excellence" as measured by the variables considered in this study or by others which may be available to research?
2. Are there any patterns likely to emerge to indicate any most efficient or economic "size" of districts if all the school districts were ranged in order of pupil enrolment, and the other variables were ranged with this continuum as a base line?
3. It appeared to be a possibility that certain expenditures such as other educational expenditures may be related to some measures of

educational effectiveness in the districts. It cannot be expected that a ceramic kiln, a film projector, a large addition to the school libraries, or a set of climbing ropes will have the same impact on the effectiveness of the educational programme. Some examination could be made of the equipments in the schools, and of the use that is made of them in relation to some measure of excellence.

4. Some research into the variations between schools within the districts would throw light on the effectiveness of the district administration as opposed to the school administration; a basic question is to examine variations within districts rather than between districts to test whether "excellence" is a school or a district entity.
5. Some research might be directed into the causes of high expenditures on certain items; this study has examined what sums were spent, but ignores the question of why they were so spent. Parallel to this would be a similar study of reasons for low expenditures; are these the results of parsimony or of economy?
6. Where the Annual Reports of Departments of Education are available, and where the information reported is comparable to that available from British Columbia, similar studies of other provinces might show similar or opposing information which would throw some light on inter-provincial similarities or differences.

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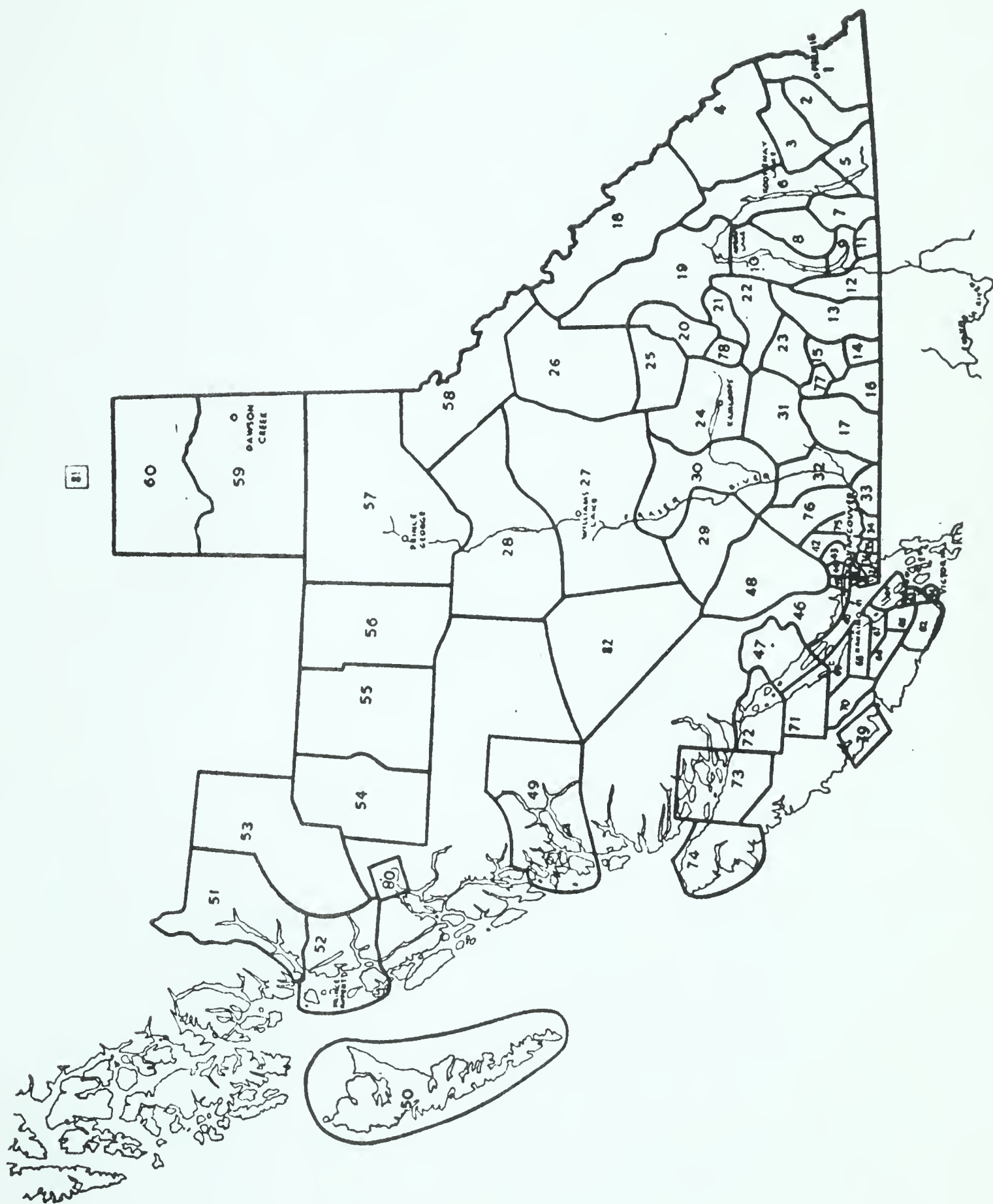
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APPENDIX A



School districts of British Columbia

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